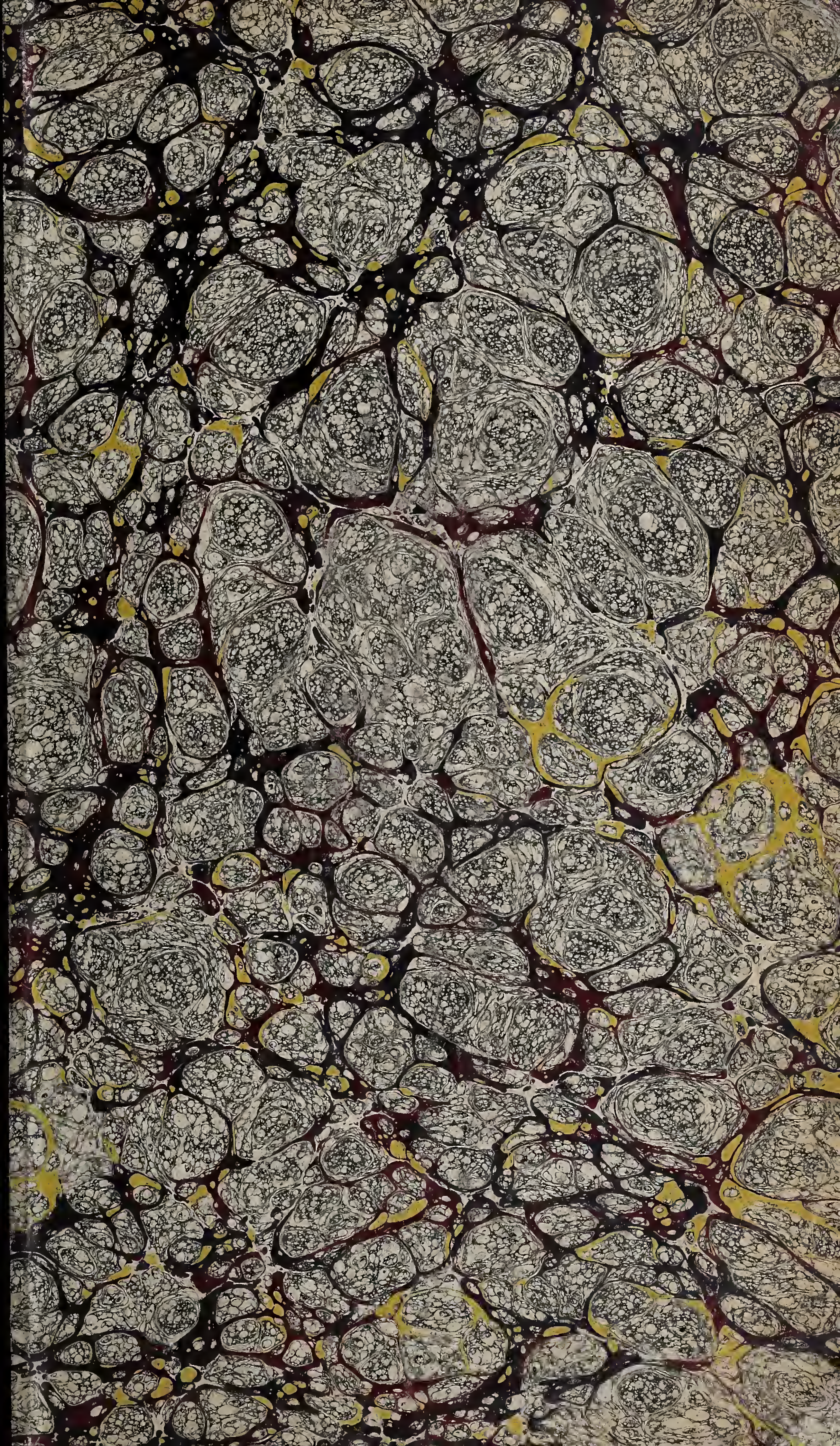

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# THE JOURNAL
OF THE
# Tennessee State Medical Association

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OLIN WEST, M. D., Editor and Secretary
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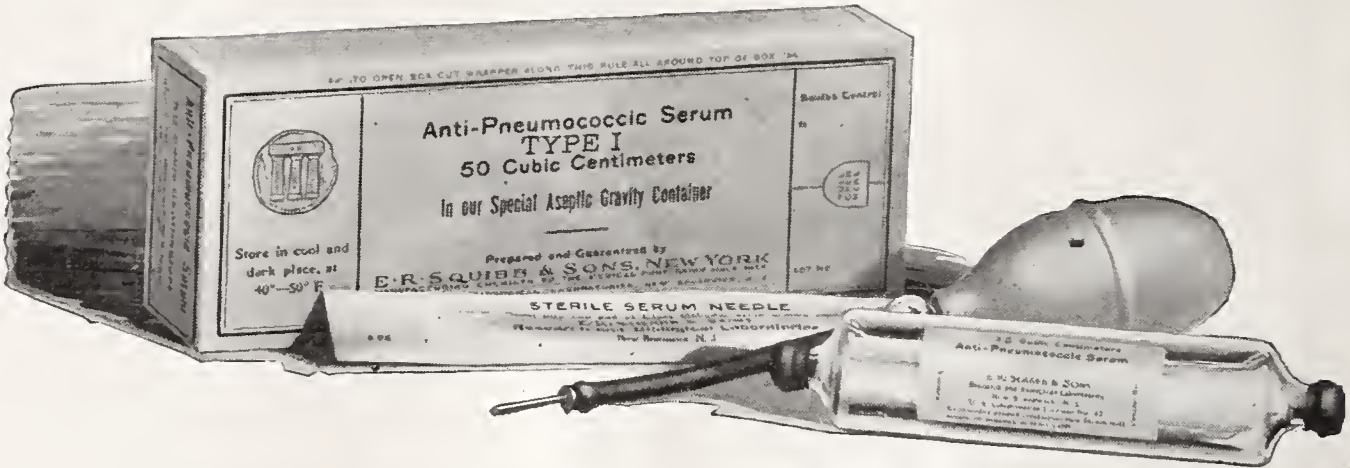
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VOLUME XIV NASHVILLE, TENN., MAY, 1921 NUMBER 1

# PRINCIPLES IN THE RECOGNITION OF SYPHILIS AND THE SYPHILITIC

By John A. Witherspoon, M. D.
Nashville.

Recent years in this progressive age have demonstrated beyond a doubt that the unit in all national prosperity must be a healthy people with normal mental and physical capacity. This can only be made possible by healthy sons and daughters of strong healthy parentage. If we attain the ascendency and maintain supremacy over the world we must avoid the weakening influences that go to make for degeneracy and inefficiency.

Syphilis is the most protean and widely distributed disease known, capable of destroying the usefulness not only of the individual by its destructive effect on his mental and physical possibilities, and by lowering his resistance and productiveness subject him to all the destroyers of mankind, but may by infection and transmitted tendencies rob the unborn of their birthright of strong and useful citizenship.

Syphilis is an infectious disease which permeates all branches of society without respect for age, sex, race or social environment. No organ or tissue of the body is immune to its manifestations. It stimulates many diseases and modifies or changes the characteristics of practically all other diseases.

Its mortality is about third in the race with death, and when we consider that there are about ten million cases in the United States we may well stop and consider our responsibility in the prevention of this great menace to the life and usefulness of a people and which in turn threatens and strikes at the prosperity and greatness of a nation, by its transmitted effect on the descendants of its victims, taking the birthright of normal mental and physical possibilities from the unborn children, the national units upon which the future strength and prosperity of the world must depend. It is apparent to all and especially the physician that upon its early recognition and proper management depends the welfare of its victims. It is a national, yea, a world problem, upon the solving of which will depend the future prosperity of the children of men and the greatness of a nation.

A chain is no stronger than its weakest link and no government stronger than the people who compose it. What physician or citizen who loves his country can object to the great work our government has undertaken to control this terrible scourge, which by its ravages upon its victims lessens or destroys their usefulness or productivity? We as patriotic citizens and physicians should encourage and assist our government in its great propaganda against venereal disease in whatever manner they may choose to act, either by establishing free clinics and insisting on the reporting of every case of an infectious nature which by many different channels infects others. I go further and have just helped to organize a society of Social Purity, the object of which is to educate the youths of our country, teaching them the laws governing the sexes and the dangers which threaten together with a knowledge of the prevention and protection against the terrible consequences of venereal diseases. The time has come when the girls and boys of this country should be taught the lessons of prevention and social purity.

Syphilis is capable of widespread tissue destruction, involving every tissue or organ in the body with the symptoms or physical signs and laboratory findings. In a sym-

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posium like this I believe it would be most interesting to discuss it from case reports, taking the most common visceral lesion to demonstrate its effects.

In its diagnosis I want to emphasize the very great importance of thoroughness. To make any diagnosis one must:

1st.—Recognize the very great importance of correct careful history-taking.

2nd.—Careful clinical and physical signs only gotten by examination of each physiological system. This is of great importance, first to determine whether the subject is a syphilitic and whether it is the lesion producing the symptoms or complicating some other disease.

3rd.—Taking into consideration laboratory findings and giving to them their true significance or importance, never forgetting that after all they are important adjuncts to the diagnosis, and not the controlling one. In other words, in this, as in all well worked out and careful diagnosis, the important and essential method of acute determination must be by the proper co-relation of every means of diagnosis at our command, giving to each its proper importance before we reach a final conclusion.

It would probably be of more interest to present this subject in the form of case reports and I shall first call attention to syphilis of the cardio-vascular system. It is questionable whether the aorta or the heart is primarily affected. There can be no doubt but that in many cases aortitis is the first manifestation of syphilis of the vascular system. It is safe to say that practically all cases of aortitis under forty years of age are of syphilitic origin and involvement of the aortic valves and the myocardium secondary. First, when a very large heart, especially in its transverse diameter with or without valvular lesions is found, a Wassermann should always be made. This is especially true if an aortic regurgitation also is present. Second, when with this dilated hypertrophy there is an auricular fibrillation, when the pulse is constantly above 120 with constant arrhythmia, or there is a variation as in the case when the auricular contraction is from 120 to 140, the ventricular rate is from 90 to 100 and a radial pulse of from 30 to 40 with or without a positive Wassermann, a diagnosis of syphilis of the heart is justifiable. In all these heart cases it should be remembered that the valvular changes are of minor importance and the integrity of the myocardium and the arterial changes associated, whether the lesion is a localized aortitis or a general arterio-fibrosis is the real entity of importance.

The prevalence of syphilis of the aorta is emphasized by autopsies in the Mass. Gen. Hospital on syphilitics, proving that from 67 per cent to 85 per cent had aortitis. This was confirmed by Warthin's investigation in the University of Michigan, where 88 per cent was found in one third of all autopsies held. There are a special per cent of aortitis which are not specific from local infections. The question has been often raised as to what stage aortitis can be found. It has been found six months after infection and as late as 33 years after, the average being from ten to sixteen years.

It should not be forgotten that nearly all aneurisms of the arch of the aorta are of syphilitic origin.

In vascular syphilis of abdominal organs the liver is possibly the most frequently affected. It may occur in two forms. First, localized gumma about the hylus of the liver, or in the form of general cirrhosis, in which there is a hobnail enlargement with an associated enlargement of the spleen.

Abdominal ascites is common, and in many cases the fluid has been of a milky hue.

It is worthy of notice that in localized syphilis of the liver the left lobe is more frequently involved. In these cases I have been impressed with the intermittent attacks of perihepatitis with slight rises of temperature and slight jaundice lasting for only one or two weeks.

Syphilis of the stomach, while not common, should be considered. It usually presents the symptoms of either ulcer or cancer. In my experience pain, vomiting and hematamesis are common in the type, simulating ulcer, but the lesion is usually in the cardiac portion and not in the pylorus. The pain is not so definitely associated with taking food as in ulcer, being frequently worse at night. In the type simulating cancer the lesion is usually in the midgastric region and not the pyloric and the tendency is to the hour glass stomach. While the x-ray is helpful, the other manifestations of syphilis together with a positive Wassermann is essential. In the cancerous type the mass is usually centrally located and more than one case has been open and passed up because of the extensive lesion, and glandular involvement, only to yield to antisyphilitic treatment.

Syphilis of the lung, while more frequent than formerly thought, is more prevalent and under modern investigation found to exist. There are two types, the gummatous and the so-called pneumonic type in contra-distinction to tuberculosis for which it is usually taken. The hilus and not the apex is the usual site. In fact, statistics show a marked preference for the middle lobe of the right lung beginning at the hilus and extending to the periphery. The absence of T. B. and a positive Wassermann is very important. There are exceptions to this rule, as in a case I reported some years ago. The entire left lung was so involved that the side had been repeatedly tapped for a pleuritic effusion. This case yielded to treatment as will be seen by these x-ray pictures.

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## THE INITIAL LESION AND ITS DIAGNOSIS

By Tom R. Barry, M. D.,
Knoxville.

The annual cost for the care of the insane in the United States is one hundred and sixty million dollars—forty millions, or tweny-five percent of which is due to syphilis.

There were in New York City in 1912 800,000 syphilites, about 20 per cent of the adult population.

Young, in a routine examination of 267 pregnant women among hospital patients, found 25 yer cent positive Wassermann reactions.

It was not until the end of the fifteenth century that the prevalence of this disease was recognized. The origin of syphilis has been rather definitely traced to the American Indians, who accompanied Columbus back to Spain, and it was from this place that the disease spread through all Europe.

It is indeed clear that there can be no particular characteristic primary lesion, since we know that a fissure, a tubercle, an erosion, macule or papule, may become a chancre; but it may be generally said that all chancres tend to conform to certain characteristics, occurring usually on mucous of quasi-mucous surfaces, the induration of which may precede, accompany or follow the condition with which it is associated.

The silvery spot, as described by Taylor, is one of the rarer types, first pinhead in size and resembling the burn produced by carbolic acid; the dry papule, the purple necrotic nodule, the echthymatous chancre, the elevated ulcer, the indurated nodule and the chancrous erosion, are only a few of the many types of primary lesions that could be mentioned.

The chancrous erosion, probably the commonest of all types met with, begins as a round exoriation, dull red in color, neither elevated nor depressed, slowly increasing in size, painless, with a smooth surface, and a definitely indurated base from which a small amount of serum oozes.

Though the commonest site of chancre is on the external genitalia, other locations are by no means rare, and according to Hazen, five to six per cent of all chancres are extra-genital, but this does not mean that this number is innocently acquired.

In review of fifty-eight cases by Montgomery, the lesions were distributed as follows:

Lips, twenty-five; tongue, three; gums, one; corner of the mouth, one; tonsils, one; cheek, one; eye, one; neck, one; abdomen, five; breast one, nates, one; arms, three; finger, seven; wrist, one; forearm, two; back of hand, one.

The first change found in the tissues is the formation of new capillaries, a grouping together of lymphatics and plasma cells, forming a ''coatsleeve'' infiltration surrounding the blood vessels. The endothelium becomes swollen, proliferation occurs, thus narrowing or even occluding the lumen, thereby causing a sloughing of tissue, due to loss of blood supply.

We are indebted to Schaudin, Hoffman, Metchnikoff, Roux, Finger, Landsteiner, and others for their original work in demonstrating an early systemic infection, even prior to the appearance of initial lesion.

Reasoner produced syphilis in rabbits by inoculation of extract of lymph glands taken from other rabbits seventeen days before the initial lesion appeared.

Wile reported the appearance of spirochaetes in testicles of rabbits a few days after inoculation and before the initial lesion appeared.

Brown and Pierce demonstrated spirochaetes in inguinal glands forty-eight hours after intratesticular inoculation.

Spirochaetes have been isolated from the blood stream twenty-six days prior to the appearance of any lesion.

Wiles and Stokes, in a study of 221 cases of syphilis, in which only the primary lesion was present, found definite involvement of the nervous system in 22 per cent, with positive Wassermanns in eight cases.

Comparative frequency of chancre and chancroid is well shown by the following statistics taken from the records of the Allied Armies:

In the French army in 1916 there were 18,900 venereal sores, 30% being chancroid and 70% chancre.

In the British army there were 27,000 ulcers, 22.5% of which were chancroid and 70% chancre.

The statistics of our army were in direct variance with these figures, and showed a prevalence of 75.5% chancroid, against 24.5% chancre.

This discrepancy has been explained as being due to the routine use of prophylatics, the failure of which in the prevention of chancroid has been proven.

The differentiation of these two conditions without laboratory aid is a human impossibility, and we should never forget that the patient who exhibits a chancroid or a herpes today may have been inoculated at the site of the lesion and tomorrow develop a chancre.

The short incubation period, the multiplicity of sores, the inflammatory type of glands, will suggest a chancroidal nature of the lesion, but these are only presumptive conclusions. The base of the chancroidal lesion will be found less indurated, the edges will be more uneven, and of a more tawny or yellow color, as compared with the dark red color of the chancre. The course of the lesion is much more rapid in chancroid, and the resultant loss of tissue much greater than in syphilis.

The differentiation between chancre, cancer, herpes, progenitalis and scabies will cause little confusion. The age of the cancer patient, the history, the slowness of growth, will aid in the differentiation.

The lesions of herpes begin as superficial vesicles upon an inflamed base, with itching and burning, and history of repeated attacks, with an absence of glandular involvement.

Scabies will cause more confusion than is generally believed, and a snapshot diagnosis of syphilis has often been made where sulphur ointment would have cleared up the condition.

## CONCLUSIONS.

1. That the prevalence of syphilis is about one to every six or seven adults.

2. That the infection becomes systemic very early, and before the primary lesion appears.

3. That all venereal ulcers should be regarded as syphilitic until otherwise proven.

4. That the history, clinical signs and appearances are to be considered only as presumptive evidence, and that without the aid of the laboratory, diagnosis of primary lesion is impossible.

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# REACTIONS OF SYPHILIS IN THE NEW-BORN AND GROWING CHILD.

Edward Clay Mitchell, M. D.
Memphis.

In discussing the reactions of syphilis in the newborn and growing child it is necessary to consider it from two view points, which have to deal with the source of infection.

The ravages of the spirochete are the same in the young as they are in the adult, the difference being one of intensity which depends upon two factors:

**First** All the organs of the young are proportionately more vascular than those of the adult. This organism thrives best in vascular tissue.

**Second** The infection obtains a firm foot-hold intra-utero, sometimes very early intra-utero, so that we see the ravages almost complete at birth, so that we have to deal with **Hereditary Syphilis,** where the manifestations range all the way from early secondary to the late tertiary, and the **acquired form** of syphilis, where the lesions follow the adult cycle, but possibly develop more rapidly because of more fertile soil.

**Influence of Hereditary Syphilis**—Statistics show that it varies from 2 to 14 per cent in Europe and America. A recent study of 609 cases in the Children's Memorial Hospital in Chicago, including clinical and laboratory methods of investigation, show an incidence of 3.3%. The amount of hereditary lues as given in statistics in New York, St. Louis, San Francisco, and Chicago range from 2 to 6%.

**Mode of Infection**—Clinical opinion at the present is to the effect that while the male is infectious for only 2 to 5 years after contracting the disease, he infects his child by first infecting his mate, rather than by direct primary infection of the ovum by the triponemata carried over in the semen. The mother may continue to transmit the disease for a long time and bear luetic children for years after the disappearance of her own symptoms.

Resistance to infection can not be said to be absolute in any stage of the disease.

The luetic anaphylactic skin test is a reaction of infection rather than of immunity to lues.

There is evidence to suggest that the original belief of Colles and Profeta, namely, that the antibodies against lues are produced by the cells of a syphilitic mother and passively transferred to her child, has been disproven. It would be advisable to regard every child of syphilitic parents as infected and to expect a syphilitic to be born where syphilis is demonstrated in either of the parents before birth. Much might be done by more careful examination and early anti-syphilitic treatment given through the mother of the unborn child.

**Comparison of the Syphilitic with the Non-Syphilitic as to General Nutrition.**—Where the infection has taken place early in the fetal state there is little doubt but that the infant will be born dead or in such a state of depletion that the chances are but slim for future growth or development. I refer to "The Little Old Man" described in all the text books as the clinical picture of lues.

In addition to this we have another class of infant who is born in the state of seeming health but who does not grow and develop as he should, perhaps shows only some of the milder stigmata of lues, which will be described later on, an inability to withstand infection of all types and a lowered food tolerance as evidenced by the symptoms of the milder metabolic disturbance. I fear that we do not always consider these cases as we would the debilitated child from other sources. I think clinical experience shows us that more of these patients die from inanition than possibly from the ravages of syphilis directly, and, when we consider that a syphilitic can suffer from all the other ailments of childhood, added to a weaker constitution, we will have a more rational working basis.

Often the manifest lesions under intensified anti-syphilitic treatment clear quite as rapidly or more so, than in the adult, but sometimes this same treatment, particularly the mercurial preparations, will interfere with the delicate mechanism of digestion and defeat our whole purpose, resulting in the death of the patient.

**Skin and Mucous Membrane**—Rather intensive infiltrative processes are the most common manifestations seen, particularly around the mouth and anus. Untreated these processes become chronic, leaving deep bleeding fissures which radiate. When these heal they have rhagades or deep radiating scars which are considered pathognomonic of early syphilis.

Ulcerations of the mouth and vulva are often noted.

True syphilitic rash or cutaneous lesions are seen as a rule in about two-thirds of the cases.

My experience coincides with that of Veeder and James, that the most of the cases observed fall into two simple types which are occasionally combined:

1.—A macular or slightly maculo-papular rash.

2.—An exfoliative or desquamative dermatitis involving the soles of the feet and the palms of the hands.

This desquamation is usually in large flakes and the surface beneath is glistening and shiny. Sometimes small condylamata are noticed. Occasionally we note small bullae or blebs on the moist surfaces, usually associated with evidences of secondary infection. In my observation, typical pustular syphilides have been rare. Some of these infants show a cachectic or mud yellow color due in part to the accompanying anemia; the waxy yellow often seen is caused by cutaneous infiltration with thickening and cellular infiltration.

**Rhinitis.**—This is one of the common manifestations and is usually one of the first symptoms to disappear under treatment. It varies from a slight muco-purulent type to a heavy thick bloody discharge, sometimes so severe as to occlude the canal.

**Syphilis of the Bones or Joints in Infants** will be divided into two classes: congenital, or those noticed at birth or during the first year of life, and late hereditary, or those usually appearing after the fifth year.

When the disease is much advanced we have the pathological fracture at delivery or soon after. These are produced with but slight traumatism and are frequently overlooked at varying times.

There is often marked weakness or paralysis accompanying the disability. Pain on manipulation is usually slight. Tenderness is found not only at the sight of the fracture but throughout the entire shaft generally.

Joint involvement is joint distention, polyarticular and symmetrical in distribution, asymmetrical in appearance. Bone thickening plus softening. Infiltration of the capsule. Motion slightly limited, marked tenderness. The favorite sites in proportion to frequency are the knees, elbows, shoulder, fingers, wrists and ankles.

Epiphysitis as shown by the x-ray and necrosis is a fairly common lesion in heriditary syphilis. It is only when the epiphysitis extends to and involves the periosteum and muscles that it is clinically recognized, the so-called Parrott's pseudo-paralysis.

Another change, cartilagenous in nature, is the depressed nasal bridge or so-called "saddle nose."

Late heriditary changes appearing after the fifth year are usually those of shaft involvement--a symmetrical spindle shaped shaft caused by successive layers of periosteum tapering toward both extremities of the shaft. Tenderness may be produced; disability as a rule is slight.

**Teeth.**—Among the most characteristic changes of the osseous system should be mentioned those of the teeth. These changes may be traced to a disturbance of nutrition at the time dentine and enamel are being laid down.

All malformations of teeth are suggestive of syphilis, but the following are most prominent:

1.—Exaggeration of interdental spaces, especially between the upper and central incisors;

2.—Microdentia;

3.—Irregularity in dentine;

4.—Atrophy of cusps and first molars;

5.—Atrophy of cusps of the entire dentition;

6.—Hutchinson teeth;

7.—Screw-driver teeth;

8.—Peg teeth.

The irregularities in dentine show the approximate time at which the infection becomes intense enough to interfere with development.

Failure of the cusps of the first permanent molars indicates the sixth month intrauterine. Hutchinson teeth, the first month extranterine and later. Transverse lines appear on teeth from interference with development of dentine. The absence of one or more permanent teeth is suspicious of syphilis.

In a recent article in J. A. M. A., A. L. Fisher draws attention to the similarity of tuberculosis and syphilitic lesions of bones and joints. Especially did he find this true in children, which is not in accordance with the ordinary teaching that syphilitic joints are uncommon in childhood. He brings out the point that the Wassermann is absent in a high percentage of these cases. Also that fixation of the syphilitic joint neither gives relief nor aids in restitution of the part.

The therapeutic test is the most reliable for diagnosis.

**Spleen.**—Various writers give different statistics as to the spleen. In Veeder and James series of 100 cases, in 82 the spleen was palpable. This is a little large percentage than is usually given.

An enlarged spleen in an infant under six months usually means syphilis, tuberculosis, or exudative diathetis. The rachitic spleen is later in development and other causes such as malaria are not very common.

**Cardio Vascular Changes.**—So engrossed are we physicians with the control of the skin, mouth and lymphatic lesions that we fail to realize the all important truth that syphilis in its early stages is an acute infectious disease and as such is just as prone as rheumatic fever to attack the circulatory apparatus, perhaps even more so, for syphilis is conceded to be a vascular disease, par excellence. We may find particularly in the vascular child all the visceral lesions of the more acute infections.

**Early Manifestation of the Nervous System.**—General convulsions of syphilitic meningitis usually occur without fever and may recur at short intervals or may be separated by weeks or months. Some cases may give the symptoms of epilepsy. As is also well known this disease arrests development of the brain producing the mentally deficient.

**Effect of Syphilis on the Special Senses.**—The effect of this disease may be felt by an eye before that eye ever sees the light of day. The mesoblast which forms the greater part of the eye is the tissue which bears the brunt of the attack. Hereditary syphilis produces a prenatal iritis and choroiditis, leaving the eye badly affected. Interstitial keratitis is one of the more common lesions.

Deafness and labyrinthian disturbances are known to occur. Sauer makes the statement that sudden deafness in the adolescent in the non-suppurated ear is usually syphilitic.

**Latent Syphilis.**—In order of frequency structures most commonly involved are the eyes, ears, nervous system, bones, joints and mucous membranes of the nose and throat.

The statement is made by Jeans that the triad described by Hutchinson should be superceded by Hutchinson's teeth, keratitis, and synovitis of the knees.

**Wassermann Reaction.**—As a rule this test may be considered of more value than in the adult, there usually being a definite positive reaction in the presence of syphilis or a negative one in its absence. According to most writers between 60 and 70 per cent of the newborn who are clinically syphilitic gave a positive Wassermann. Some may remain negative for two or three months. Recent mercury medication may interfere with the reaction. An interval of from two weeks to a month should elapse before accepting a negative result.

Occasionally in the presence of tuberculosis and the absence of syphilis where cholesterinized antigen is used a weak positive is obtained. In these cases the diagnosis should depend upon the reaction obtained from the rest of the family and the clinical findings

In view of the above facts we might say, a clear cut positive Wassermann in the child means syphilis. A negative Wassermann does not mean freedom from syphilis in the presence of suspicious lesions.

## SUMMARY

In summing up, the spirochete behaves the same, produces the same train of symptoms and lesions whether in hereditary or acquired syphilis. The manifestations differ because in the acquired type the history and initial lesion aid in an early diagnosis and a more prompt arrest of the condition

In the hereditary type the harm is often beyond repair before being recognized.

In the young infant, because of the greater vascularity the developing structures are more profoundly affected.

As the child grows older and development completed, the symptoms resemble those of the adult type. Syphilis is a familial disease. If a child shows an hereditary syphilis both parents are syphilitic, and all the other children of the family, unless the disease was acquired by the parents in later life. This fact should be of value in both diagnosis and eradication of the condition. While not infallible, routine Wassermann in all pregnant mothers, especially in dispensary practice, would greatly aid in early diagnosis and also assist in many cases in the diagnosis of the latent type who show no clinical manifestation at first, but develop sometimes years later. The young infant has the same Wassermann negative period as does the adult.

Consider clinical findings carefully before making negative diagnosis. Consider these syphilitics as debilitated marasmic infants as well as syphilitics.

Do not lay all stress on destruction of spirochete.

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# THE LABORATORY DIAGNOSIS OF SYPHILIS

## A Resume of Some of Its Clinical Applications.

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Almost unique among medical conditions in a wide variety of respects, syphilis presents one important feature,— almost a redeeming quality, of the greatest consequence, i. e., that of the specificity of its laboratory reactions. Few other human diseases have been studied with as fruitful results from the point-of-view of development of diagnostic and therapeutic resources as has syphilis, and in only a few is the opportunity presented to utilize our knowledge to as gratifying a degree. As data continue to be assembled illustrative of the incalculable physical and economic burden which syphilis imposes, the magnitude of the problem only emphasizes the extent of this opportunity, provided that the prime necessities of prompt diagnosis and efficient treatment are ever kept before us as physicians.

It is the purpose of the present paper to discuss some of the laboratory methods of proven worth in the diagnosis of syphilis, and these rather in their clinical than in their technical aspects. It may be not amiss to again emphasize here the fact that, while laboratory findings in syphilis have an unusually large degree of precision and often of specificity, they should be regarded as relative rather than as absolute, and as elements in a diagnosis rather than the diagnosis itself.

Of the innumerable tests and diagnostic methods which have been proposed at various times, mention will be made of only such whose utility is generally accepted. We are today in possession of a number of procedures which are applicable under different conditions, particularly with reference to time or rather to the "stage" of infection. It is possible that, from the point-of-view of greatest all around usefulness, the complement fixation or "Wassermann" reaction is deserving of first mention, though, as stated in a recent circular (No. 14) from the office of the Surgeon General of the Army, "it is of the highest importance for the cure of syphilis that the initial lesion of syphilis be recognized at the earliest possible moment.'' Obviously the earlier a precise diagnosis be made and presumably while the disease is still more or less localized, the more confidently a definite cure may be expected. With reference then to stage of infection and, at the same time, importance as concerns prognosis, it will be convenient for present purposes to discuss the laboratory diagnostic procedures for syphilis in the following order:

1. Initial Lesion Examination.
2. The Complement Fixation Reactions.
3. Spinal Fluid Reactions.

**Initial Lesion Examination:** By far the most important in many respects, the precise diagnosis of syphilis in its primary stage offers the greatest possibilities and should be the method of election as far as practicable. Since the discovery of the **Spirocheta pallida** by Schaudinn in 1905 and the subsequent development of the dark-field condenser method of its demonstration, the older clinical practice of diagnosing chancre by clinical characteristics alone can hardly be considered justifiable any longer. In untreated local lesions careful examination should reveal the presence of spirochete in practically all cases and the earlier the lesion the greater the probability of demonstrating its true nature at the first examination. In older lesions, mixed infection, and in ulcers which have been treated with antiseptics, repeated examinations are often necessary and, in some, recourse is at times necessary to the Wassermann reaction; it should be remembered in this connection that the complement fixation reaction does not become positive until two or three weeks after the appearance of the chancre an it is hence of the utmost importance that local treatment be deferred and examination of the suspected lesion be thorough before a ''negative'' opinion as to primary syphilis is rendered.

Technically, spirochete may be demonstrated in primary lesions by methods of staining, by the ''India-ink'' method of Burri, and most easily and frequently by the dark-field condenser method. Staining methods, such as those of Giemsa, Goldhorn and others, have rather an academic than a clinical use and in practice are next to valueless. The ''India-ink'' method is simple, easy and fairly useful; it consists of making a fairly thin smear of exudate obtained from the suspected sore, after carefully cleansing the surface, mixing thoroughly with some good ''smooth'' grade of India-ink (such as ''Chin-Chin'' or ''Liquid Pearl''), and examining microscopically after allowing to dry; by this method, spirochaete, bacteria, etc., are not stained but are seen in silhouette against a dark brown background; artefacts are often very troublesome and when presena, spirochaetes have frequently an atitypical appearance. This method is useful rather as a makeshift when access to a better equipped laboratory is not possible.

Dark-field condenser examination represents the highest development of technique for the diagnosis of primary syphilis and, in competent hands, may be brought to a high degree of precision. Briefly, the method consists in the examination of the fresh exudate or material, curetted or expressed from the suspected lesion, with a microscope equipped with a dark-field condenser in the place of the usual Abbe condenser and illuminated by a powerful lamp. As indicated above, the method is most efficacious in early and in untreated lesions. The suspected sore is carefully cleansed by wiping with gauze, and a small amount of its exudate collected with platinum loop or a small curette upon a slide, covered with a cover glass and examined microscopically. In a properly prepared specimen, the spirochaete are very characteristic in appearance, and as they are alive and in active motion, they are easily identified. In lesions about the genitalia and elsewhere except in the mouth, their presence suffices for positive diagnosis of syphilis, as no other organisms are apt to be encountered with which they might be confused. In mouth, gum, tongue and throat lesions, much greater caution is necessary and other evidence should be sought, as spirochaete very closely resembling those of syphilis are at times found about these structures under other conditions.

An additional method which has been successfully employed where direct examination of the lesion has been without results, is that of dark-field examination of material aspirated from one of the neighboring lymph nodes. Where, because of chronicity with overwhelming invasion by secondary infection, or because of treatment with local antiseptics, examination of the lesion itself has been negative, it is at times possible to demonstrate the syphilitic nature of a lesion by finding spirochaete in the liquid aspirated from the indurated base of the sore or from a regional lymph gland. After preliminary cleansing, the base or gland is punctured with the needle of a hypodermic syringe and a drop or so of its contents aspirated and examined, preferably by the dark-field method; Schultz (Jour. A. M. A., July 17, 1920, LXXV, 176) has suggested the injection of a few drops of sterile salt solution to facilitate the aspiration.

In clinical practice, the indications which should govern examination of genital and other lesions suspected as being possibly syphilitic in character are easily to state. All ulcers and other lesions about the genitalia and elsewhere if there be reason to suspect that they may possibly be syphilitic should be carefully and repeatedly examined for spirochaete, and local treatment should be studiously withheld until their nature has been ascertained. While this applies rather to genital regions, it should be emphasized that about 8% of all primary lesions of syphilis are said to be extra-genital, (Porter, H. W. Arch. Dermat. U. Syph., N. S., Jan. 1920, 1, 15), that extra-genital infection is much more common in women than in men, and that persistent "cold sores" about the lips or face, persistent small ulcers about the fingers, and other indolent local infections elsewhere whose cause has not been determined are being found to be chancre with increasing frequency as microscopic examinations are becoming more widely employed.

**Complement Fixation (Wassermann) Reaction.**—In the complement fixation reaction, —more commonly though less correctly known as the "Wassermann" reaction test, medical science has a widely applicable procedure of the greatest usefulness. This reaction is so well known that it would hardly be within the scope of this paper to enter into its technical minutiae. It may, however, be worthy of mention to state that, while the test is in a measure an immune reaction, it is not a specific antigen-antibody reaction and its true nature is still far from satisfactorily determined; this fact, however, does not detract in any way from its clinical usefulness, and, for all practical purposes, it is quite specific in its behavior in syphilis.

Since development of the original technique in 1906, a large number of modifications have been proposed by various investigators, though with the exception of improvement in the preparation of antigens, the introduction of cholesterinized extracts as antigens of higher sensitivity, and a few refinements in technique, the test remains much at it was originally developed. New developments have rather been in connection with clinical interpretation and in the amassing of evidence than improvement in the reaction itself.

The clinical utility of the complement-fixation reaction is well-known and may be briefly summarized. In the following table, taken from Boas and Noguchi, a valuable resume is exhibited:

| **Condition** | **No. of Cases** | **Pos. Results**<br>Per cent |
|---|---|---|
| Primary Syphilis | 974 | 56.5 |
| Secondary Syphilis | 2762 | 88.0 |
| Tertiary Syphilis | 830 | 80.0 |
| Early latent Syphilis | 1233 | 51.0 |
| Late latent Syphilis | 861 | 47.0 |
| Congenital Syphilis | 125 | 94.5 |
| Cerebrospinal Syphilis | 64 | 47.6 |
| General Paralysis | 498 | 88.1 |
| Tabes Dorsalis | 360 | 70.0 |

Craig, (Wassermann, Test, end. Ed. 1921, Mosby, St. Louis). after an extensive personal experience in the Army, makes the following statements as to what can be expected of the reaction: "that about 86 per cent of infections with syphilis will give a positive reaction with the Wassermann test, if they are distributed among the various stages." "With good technic and efficient antigenic extracts one should expect 90 per cent of positive results in the primary stage of syphilis; 95 per cent of positive results in the secondary stage; 87 per cent in the tertiary stage; and

70 per cent of positive results in the latent stage.''

As a criterion of progress during the course of treatment and in determination of cure, the complement fixation reaction is of equal if not greater value than in diagnosis, in that it is unquestionably the most reliable and delicate of all the symptoms of the disease. Under practical conditions, an unquestionably positive reaction means the presence in the body of living spirochaete regardless of the presence or absence of other findings, and that treatment must be persisted in until the reaction shall have become definitely and permanently negative. It should be emphasized that a single negative test after treaement has only a relatively slight value, and that if relapses are to be prevented and controlled, repeated examinations are a matter of necessity.

**Spinal Fluid Reactions**—Originally of the greatest interest to the neurologist and the internist, spinal fluid examinations have assumed a position of increased importance in practically all manifestations of syphilis, and it is no longer considered too radical to include spinal fluid examinations among the routine determinations for diagnosis and determination of cure after treatment. This attitude is being emphatically recommended by the leading neurologists and syphilographers of the country, and medical literature contains an abundance of evidence that with greater care in this particular, at least some considerable proportion of present failures may be prevented.

Of the several laboratory methods of spinal fluid examination whose value have been demonstrated are the following, which have frequently been mentioned together as the ''Four Tests:''

1. The Complement Fixation. (Wassermann Reaction.)
2. The cell count.
3. The Globulin reactions (Nonne, Noguchi, Pandy, etc.)
4. The Colloidal Gold Test of Lange.

Of the above, the first three are of the widest usefulness, and as their application is not a matter of undue technical difficulty, should prove most helpful. Sufficient has already been said of the value of the Wassermann reaction, though it should be recalled that involvement of the central nervous system and meninges in syphilis occurs much earlier and more frequently than has been heretofore supposed, and that positive spinal fluid findings are being demonstrated with increased frequency. The spinal fluid Wassermann is said to be positive in about 20 per cent of late secondary syphilis, in from 10 to 15 per cent of latent syphilis, and in from 85 to 95 per cent of cerebro-spinal syphilis and tabes.

**The Cell Count**—Increased cellular elements, or pleocytosis so-called, constitutes a highly valuable element in diagnosis of inflammatory disease of the central nervous system and particularly so in syphilis. Under normal conditions the spinal fluid contains from 2 to 6 cells per cubic millimeter; in syphilis of the meninges or nervous system this number may be increased into the hundreds, though there is nothing characteristic in the increase to aid the differentiation between the several types of the disease.

**The Globulin Reactions**—Demonstration of increase in the protein content of the spinal fluid constitutes a simple though highly useful diagnostic finding in neuro-syphilis. For this test the methods of Nonne, Noguchi, Pandy, and others, have been devised, and all have about equal efficiency and utility. While positive findings are present in the great majority of cases of syphilis of the nervous system, the test, like the cell count, is by no means specific, and great care is necessary to rule out other inflammatory conditions, such as meningitis due to various organisms, polio-myelitis, etc.

**The Gold Chloride Test of Lange**—This reaction, originally recommended in 1913 to distinguish between syphilitic and non-syphilitic disease of the central nervous system, is a physico-chemical reaction of very great value, but unfortunately of the greatest technical difficulty, and hence of limited applicability. It is of unquestionable value in the differentiation of meningitis, tabes, and cerebrospinal syphilis from each other and finds its greatest usefulness in institutions where by daily use and constant check under different conditions its accuracy may be kept at its maximum.

When typical, the curve obtained in this test is almost in itself sufficient for a diagnosis, though under most conditions it shold be considered as should most laboratory findings, only as one element, and be given consideration as correlated with other findings.

**Summary**—In summary, it may be stated that the laboratory methods for diagnosis and check of progress of treatment have been developed to a very high point of clinical usefulness, and that as a criterion of the permanence of cure, they have equal—if not at times, greater value.

Under most conditions, it can no longer be considered justifiable to depend on clinical characteristics alone in syphilis if the interests of our patients and of the public welfare are to be best subserved. It might be advantageous to bear in mind that, although confronted with a wide-spread disease problem of many aspects and fearful possibilities, medical science is in a position to regard syphilis in almost the light of an ideal in that specific diagnostic and therapeutic resources of the greatest usefulness are available. Given these aids, our increased duties and responsibilities are obvious.

## DISCUSSION OF THE SYMPOSIUM ON SYPHIIS. (PAPERS OF DRS. WITHERSPOON, BARRY, MITCHELL, AND DERIVAUX)

Dr. Joseph H. Smith, Memphis.—I think if we go home with nothing more than the one thought in mind gathered from this meeting that every lesion is potentially a chancre, we will have been repaid for our trip to Nashville. No matter how innocent in appearance, or how insignificant the lesion may be especially of the venereal organs, it must excite our suspicion as being a chancre. I do not believe any treatment should ever be undertaken for the local removal of a lesion of the genito-urinary organs or other places, until we have proven it is not syphilitic in origin.

Since the discovery of the spirocheta pallida and the Wassermann test, there has been no more radical improvement in our diagnosis of the primary lesion than the use of the dark field which is based upon the refractile power of the spirocheta pallida. It is a simple procedure to employ and in practically every chancre we can demonstrate the spirocheta pallida as being present. The dark field is a simple instrument to handle; it can be used more advantageously with the arc lamp, but it can be used fairly satisfactorily by the daylight refraction.

The removal of the initial lesion of syphilis is a mooted question. Whether or not that is indicated to lessen the focal point of infection when you begin treatment is a question of individual opinion. If there is a large infiltration or button, I think in a lot of cases you will lessen possibly the focal infection by removing the primary lesion and proceeding with the anti-syphilitic treatment.

The advent of salvarsan or 606 by Ehrlich has radically changed our views and prognosis in the treatment of syphilis. We know today that the greatest hope we can have of curing syphilis is in the primary and early stages. There is no doubt in my mind that in these primary and secondary cases, unless there is early invasion of the spinal cord, a large percentage of syphilitics will respond to treatment, and will proceed to an uneventful cure provided you take the proper and necessary care of the patient and carry on sufficient treatment.

The treatment in the early stage, of course, is by the blood route as the blood route is the only point practically of invasion in the majority of cases, although there are early cases of invasion of the spinal cord. We should carry the patient through sufficient treatment which is another individual equation. Some practitioners seem to think that it is necessary to carry a primary case through several years of treatment. I do not think so. I think we can cure a case in the primary stage with six or more doses of salvarsan administered intravenously, followed by mercury introduced into the vein or muscle, and get satisfactory results. I do not believe in overmercurializing or oversalvarsanizing the patient. There is a certain amount of sensitization we get in the spirochete by too much arsenical medication.

It goes back in the end to where we have to depend, as Dr. Derivaux pointed out, upon the laboratory as to whether or not our patient has syphilis or is cured. A number of times we can not demonstrate the spirochete by a dark field, by the Giemsa or Levaditti stain or other methods, and we must rely upon the Wassermann test to prove our diagnosis. The Wassermann test in the stage of primary lesion is not positive up to the third week when we can not expect a four plus positive. We often get a two plus positive, and with the aid of the clinical symptoms we can then make our diagnosis.

Dr. Hazle Padgett, Nashville.—I have been very much benefitted and edified by this symposium, and I never hear the subject of syphilis discussed without reviving memories of very extensive and very exhaustive work that I did a number of years ago under very auspicious circumstances in this country and in Europe, more especially so in Bellevue Hospital, in the General Hospital in Vienna and Berlin, under the guiding and inspiring spirit of that remarkable man, Dr. Rudolph Virchow, in diseases of the cardio-circulatory renal system. During that period of time I investigated more especially the blood vessels of the brain and spinal cord, and I was indelibly impressed with the frequency which I found in my autopsy work early degenerative changes in the medium sized blood vessels of the brain, interpreted by the means and the language of that day that we naturally had. A large percentage of them between the ages of 25 and 30 were syphilitic. There was a certain percentage that was doubtful, but with the changes and the discoveries and aids in differential diagnosis, we have had the intervening time, looking back I feel those arterial changes in the blood vessels of the brain that I discovered and noted and treated chemically were syphilitic in origin.

I do not quite agree with Dr. Witherspoon, if I quote him correctly, and my opinion is based upon my personal work, that all cases of aortitis in people under 40 years of age have a syphilitic origin. The greater part of that is true, but further opinion based upon autopsy work and based upon pathology in this part of the circulatory apparatus, I have seen lesions of this kind in this area that were not of syphilitic origin. I only wish I had my specimens of hearts and aortas, so that I could show you some illustrative examples of syphilis on the aorta and the aortic valve at the base of the heart. I am glad the doctor who preceded me laid especial stress upon one thing, and that is proving the existence of syphilis before treatment is begun. How often patients come to me with conditions in which it is very necessary to know if they ever had syphilis, saying that "at one time I had a sore and the physician hastily pronounced it syphilis and immediately put me upon treatment that I took for a few weeks and stopped it and no trouble since." With our present methods of making differential diagnosis, in coming to cold facts in regard to whether a lesion is syphilitic or not, before beginning constitutional treatment, eliminating all doubt as to the future of that individual's life, we should use every means and method to prove whether it is syphilitic or not.

Dr William Litterer, Nashville.—I wish to discuss this subect from a laboratory standpoint and to emphasize what Dr. Derivaux and others have stated, namely, the main thing is to make a diagnosis in the chancre stage. That can be made by proper technic in almost 100 per cent of cases. Of course it is quite difficult in the mouth because we are influenced by a number of microorganisms, but outside of that, from other parts of the body, especially of the genitalia, it is practically possible in 100 per cent of the cases to make a diagnosis on the first examination, provided treatment has not been instituted.

I have tried the India ink method and it is very good, but you must get the right kind of India ink, as suggested by Dr. Derivaux. I have been using collargol for some time and it makes the most beautiful specimens that I have ever seen, in that by taking one part of collargol to 19 parts of water, and using it in the identical way you would use India ink. You will not be confused by the various artefacts that are often found in the India ink.

Concerning the Wassermann reaction, it is a well approved method and should be used, using well established antigens and quite a number of antigens to back it up. I have also been in favor of using other applications with which we will get positive results where the classified Wassermann is negative, namely, the Hecht-Gradwohl method. In a number of cases positive results have been obtained repeatedly where negative Wassermanns have been obtained.

The spinal fluid I think is neglected by many physicians. I think it should be used and many experts are using it in many cases as a routine, where the Wassermann was negative in the blood.

I have been using for a number of years the gold chloride test, Lange's test, and it is a wonderful test in certain respects. It will simply help to differentiate cases of tabes from the paretic stage and neurosyphilitics from cerebrospinal syphilis. One case I have in mind recently which Dr. Sheddan knows about. This case we thought was one of cerebrospinal syphilis. The gold chlorid test was used on three or four different occasions and gave a paretic curve. It was not quite definite at first, and the symptoms in the case did not show very well or very clearly that it was a paresis. But the gold chloride test showed from the start it was a case of paresis, and although the Swift-Ellis and various methods were used, as well as the Oglevie modification, the results were negative. The patient died just a fw days ago.

Dr. W. K. Sheddan, Columbia.—There has not been any subject that has come before the Association of anything like the importance of this one of syphilis. I think those of us who are engaged in the general practice of medicine realize that the morbidity from syphilis and tuberculosis, if it could be eliminated, our work would be cut at least 50 per cent, and the importance of the recognition of the condition is certainly one of vast import.

It is only in the last few years that we have been able to make a definite and positive diagnosis of syphilis in a great many of these cases. It is only in the last few years, possibly in the last fifteen years, that we were able in a great many of these instances to know what was the prime cause or causes of the numerous conditions which we had been encountering before of such absurd character.

Dr. Witherspoon has called our attention to the cardio-vascular changes. I fully agree with the statement he made, and I would make it a little stronger, that every case of aortic lesion under fifty years of age is syphilitic in its origin. I believe that if these cases are thoroughly investigated by the various laboratory means in the hands of careful and capable observers, that fact will be proven. Until the last few years we did not recognize with anything like the amount of care that we do now these conditions, and the cardiovascular diseases of the type mentioned are much more frequent than we formerly suspected.

When we take many of the nervous phenomena, many of the cord and brain lesions of unclassified types, and realize how often we meet them in our everyday work, and how formerly we were completely at sea as to the conditions that were causing them, with our modern methods in the hands of careful and capable men we are able to often get satisfactory results in the diagnosis and treatment of these conditions. Going back to my early work in the practice of medicine, following the teaching of Keyes and others of that day, every multiple sore was considered a chancroid; that syphilis was never multiple in its primary manifestations and when you take the characteristic of the Hunterian chancre, to make the diagnosis from the initial lesion syphilis was rare. We know now, or at least I know now, that with the modern methods of examination, early examination for the spirochete from the primary sore before any treatment is instituted, the cases of chancroid have practically disappeared as I have seen them. Of all the cases coming under my care I have not observed a case of chancroid since the adaptation of modern methods and before I proceed to do anything, or before I make any suggestions as to what the patients shall do, I believe in instituting modern methods of examination. Since we are compelled to report these cases to the health office, when a man presents himself with some suspicious looking venereal sore or disease, I am not satisfied until I send him to somebody else. I will not make a report of that case until I am positive as to the diagnosis.

In the last five years Dr. Litterer has made examinations of suspicious initial sores for me, and it made no difference whether these lesions were on the fingers, on the limbs, or on the penis. If the lesions persisted for several weeks after being kept cleansed and things of that sort, I have sent them for examination for the spirochete pallida, and not one has been reported to me as being chancroidal in character. I think chancroids can be left out of the question at the present time. But the early recognition and diagnosis of syphilis can not be made positively in that way except by the finding of the spirochete pallida in the lesion. With that fact well established, I want to say here again that I do not believe one man in fifty turned out of the medical schools today as graduates can take a case and find this organism to the satisfaction of careful, painstaking men. It takes a man with trained methods of work; it takes men who are experts to find this organism, because it is an elusive organism not easily found. I have found some of them after making numerous plates and cultures and looking over numerous fields, I have seen various organisms, but was not sure whether they were spirochetes or not. We have different kinds of spirochetes; we have got the syphilitic spirochete, and not every spirochete will be of syphilitic character. It is necessary to be positive in this work, and it must be done by some one who has had a wide field of observation, who is careful and capable and conscientious in his work.

When it comes to the use of the Wassermann test, it is more applicable in the chronic conditions, in the initial stage, and that is one of the conditions where, as I have said, a positive Wassermann is almost of incalculable benefit to us, while a negative Wassermann does not mean so much.

Dr. W. G. Somerville, Memphis.—Every physician who treats syphilis, whether in the early stage or the late stages, should be very careful in pronouncing the patient cured. A patient may think he is cured according to the advice of his physician, but it is doubtful whether syphilis is entirely cured. A patient may appear well for twenty years, and then symptoms will reappear. Therefore, that patient should be instructed to report to his physician or some other physician every one or two years for observation, that he may be examined physically to see whether there are any positive signs of the disease. So many cases of neuro-syphilis which we see state they had chancre twenty years ago, but believed they were cured. They gave no symptoms, and no symptoms appeared for fifteen or twenty years. If these cases had been examined every two or three years following treatment of the initial lesion, or they could have gotten earlier treatment, the greater their chances for recovery.

In regard to the diagnosis of neuro-syphilis, one of the most important signs and one of the early symptoms are these pupillary changes. A great many cases of beginning neuro-syphilis present no symptom except a pupil which does not react to light, but reacts to accomodation, the so-called Argyll-Robertson pupil. Or it may be the pupils are irregular, and irregularity of the pupil and its slow reaction to light are highly suggestive of neuro-syphilis.

Another point I wish to mention is that in cases of tabes, there will frequently be a negative blood reaction, but if the pupillary signs are found and other clinical signs showings tabes, it makes it really unnecessary to make a spinal fluid Wassermann except for treatment.

The doctor spoke of the gold curve in such cases. Multiple sclerosis will in 40 or 50 per cent of the cases show a paretic curve with a negative Wassermann. We find cases of cerebro-spinal syphilis which have a negative blood Wassermann, a negative spinal fluid Wassermann, but an increase in the cell count, and the latter is strongly indicative of syphilis, provided you have certain clinical manifestations accompanying the case.

Dr. H. C. Guerin, Dickson.—Having done a little work along this line and realizing the necessity of recognizing the disease in the stage of chancre, and making use of the dark field, I made note of the first twenty patients that came under my observation. Nineteen of them had already tried to get rid of the sore by some kind of caustic, and that is one reason why the majority of these cases cannot be diagnosed at once.

Dr. Witherspoon said we should look upon all cases with suspicion. I recall two cases that have come under my observation within the past six months. One of them was a man who came to me and said, "Doctor, a barber cut me on the alae of the nose, and the wound does not seem to heal." I had a suspicion in my mind when this sore did not heal, and it felt a little hard, and in having a Wesermann test made, it was found to be four plus.

Another case was that of a young lady, 19 years of age. I was out in my car, saw this young lady on the sidewalk, and she told me htat she had a "fever blister" on her lip, and asked me what to do for it. I told her to paint it with Benzoin compound. She went to the country for a visit. When she came back I had a Wassermann and found her blood showed four plus.

While these patients may have been too good to have syphilis, yet they had it. So it is a good idea to look upon any ulcer with suspicion when it shows no disposition to heal.

Dr. Otis, S. Warr, Memphis.—The class of cases of syphilis that comes to the internist are all in the tertiary stage, and according to Dr. Derivaux, not much more than 70 per cent of them give a positive Wassermann. This leaves a margin of error of 30 per cent.

The attempt to make a clinical diagnosis of syphilis is rapidly going out of fashion. Dr. Witherspoon's remarks are timely in emphasizing the importance of a painstaking physical examination in looking for syphilis. The Wassermann helps us in 70 per cent.

I would like to ask Dr. Derivaux what he thinks of the significance of a persistently positive Wassermann in those cases that have had a very vigorous anti-syphilitic treatment, and in whom the Wassermann remains positive. These cases improve clinically, and yet the Wassermann test remains unchanged.

Dr. J. F. Adams, Bradyville.—I have enjoyed this discussion very much. I think all of the points have been covered in the diagnosis and treatment of syphilis, but there is one thing with which I have been impressed in the last year, and I must take issue with Dr. Sheddan in regard to what he said about the country doctor, and I am one of them, namely, that the coutnry doctor does not realize the importance of making the diagnosis of syphilis.

I want to report two cases, one of them a boy living near me, who visited an adjoining town and contracted a primary sore. He came home and was put on mercurial inunctions without a blood test having been made and left alone. He went to another doctor and was given hydrastin for a mouth wash, and he later came to me with a mouthful of mucous patches. He was living in a good family of eight people. I had a blood examination made and found it was four plus Wassermann. He was treated, he had another blood examination made, and came back with a negative report. It seems to me it was almost criminal negligence on the part of the physician in that case.

Another case was a young married man who contracted syphilis. I knew all the circumstances of the case, although he was not my patient. I tried my best to have him go to his physician to have a blood test made, and he would not. I tried to get him to see whether or not he should have salvarsan. He had not had that. This patient drifted along and has never had any satisfactory treatment. His wife developed trouble with her throat. She developed iritis and headache. She had an abortion, and I am not familiar with the details of the case, but I am sure more of the details could be worked out. All I know is the circumstances. Recently they have considered seriously trephining her skull for a tumor, and within the past three weeks her tonsils have been removed. She has never had a blood examination, and I do think that is negligence, and something ought to be done either by the State Board of Health, or by physicians to impress upon people the importance of examinations for this disease. I work among as good a class of country doctors as we have in the country. I believe they are up to the average in most respects, and I am not criticising at all. I do not know now positively that this woman has syphilis, but it does seem to me her case has been badly neglected. We have every reason to believe that she has syphilis, and she ought to have the benefit of a blood test, and instead of taking out her tonsils, it would have been better to have given her a dose of salvarsan.

Dr. John A. Witherspoon, Nashville.—(Closing the discussion on his part): I wish to thank my confreres for this very free discussion, and I am going to add two things to what I have already said. In the first place, I want to impress upon this audience that it does not necessarily follow that the manifestations of visceral syphilis are late in coming on. Some of these cases of aortititis and cardiac cases have appeared as early as six months after the primary sore. The oldest was 33 years according to the report. Anything that can enter the system with such rapidity as that and within six months time bring about organic lesions in the cardiovascular system is a dangerous thing to let go and not suspect. I believe we should occupy a suspicious attitude towards these cases, and I want to impress upon you the importance of helping our government to stop this scourge by any means they may see fit to employ, because upon the strength and health of the people depends the success of our nation.

There is one other point to which I desire to call your attention, and that is, nearly all cases of gastric syphilis I have seen have occurred in the central portion, and they simulate very much cancer of the stomach, even to the extent of the hour-glass stomach. I saw one abdomen opened for cancer of the stomach, and was closed up again as an inoperable cancer that got well under antisyphilitic treatment. We must not- forget that. Syphilis, if taken early, does certainly respond to treatment in a wonderful way, if we do no more than to stop its infectious nature quickly, as quickly as possible, and anything that is necessary to do that I feel we are under great obligations as a profession to do, and we must not what the doctor has just said that many of these cases are going around the country a menace to the whole people where no diagnosis is made, and little or no treatment given.

I am sorry I did not have time to take up neuro-syphilis, to which Dr. Somerville has called our attention. There are numerous cases of neuro-syphilis that we overlook, and which will respond to treatment after the case is carefully worked out. I for one believe that we should exhaust every means at our command to examine these cases, regardless of where they live or who they are, or regardless of their sex. I saw a young woman, 22 years of age, die of syphilis of the liver, and had great quantities of abdominal fluid recurring, and yet she was under the shadow of a great church and a great religious people. No one thought she would die so soon, because the disease was not recognized at the time, and nobody dreamed that such a thing would occur in that family.

Dr. Tom R. Barry, Knoxville.—(Closing the discussion on his part): I differ strongly with Dr. Smith who seems to have conveyed the impression that syphilis can be cured in six months. I do not believe he wishes to convey that impression. It would be a bad thing for a statement of that kind to go out from this Association that syphilis can be cured in six months. There may be a case that will yield to treatment in that time, but as a rule no case of syphilis can be so cured, or at least we have no proof to that end.

As to the removal of the initial lesion, it has been absolutely proven by laboratory and other means that the blood stream is invaded twenty-six days prior to the appearance of the initial lesion. If that is the case a great deal of harm can be done by removing these lesions which might later turn out to be cancer.

Dr. Edward Clay Mitchell, Memphis.—(closing the discussion on his part): With regard to syphilis in children, we find very few primary lesions. We run across a few secondaries and many tertiary. I think a good many of the untoward results we get in later life are due to our not making a diagnosis in the infant. The diagnosis should begin with the parents without regard to social station, and I think every suspicious sore should be considered syphilitic until proven otherwise without regard to the family or other consideration.

Dr. R. C. Derivaux, Nashville.—(closing the discussion): I think that this symposium has served a very useful purpose and has brought out a great deal of interesting clinical information.

With reference to Dr. Warr's question as to the persistence of a positive Wassermann reaction after treatment, I think the most prudent course to follow is to interpret a persistent Wassermann reaction as meaning persistent syphilis and continue treatment accordingly, certainly for the present and until definite knowledge concerning the so-called 'Wassermann fast" strains of spirochaete and the limitations of present-day therapy have been more clearly established.

As to negative laboratory findings, sufficient has already been said to indicate their position and here, as elsewhere, negative evidence can have value only proportional to its mass. Positive findings, such as demonstration of spirochaete in a local lesion, are of course absolute and definitely make the diagnosis.

One additional point which might be worthy of mention is that of the mooted question of the value of extirpation or excision of the primary lesion in syphilis once the diagnosis has been made. While this has been recommended by some authorities in the past, it has been the experience of laboratory workers that a single injection of salvarsan completely removes the spirochaete from the chancre and this within a very short space of time; in a recent case in which this experiment was tried, spirochaete in great numbers were demonstrated in a young chancre at about five o'clock in the afternoon; this patient was given an intravenous injection of salvarsan by his physician about one-half hour later and his chancre reexamined the following morning with entirely negative results. This observation has been made by enough different workers to definitely fix our minds as to whether anything is to be gained by extirpation of the primary lesion.

# TUBERCULAR PERITONITIS.

By John B. Haskins, M. D.,
Chattanooga.

The last decade has proven to medical men and surgeons of our larger clinics that tubercular peritonitis is never primary, but like septic peritonitis, is symptomatic, having its origin in some local focus of infection. Tyson says that four-fifths of tubercular peritonitis is secondary to pulmonary tuberculosis.

The fallopian tubes in women, some part of the intestinal tract, especially Peyer's patches in both women and men and the lymphatic glands and channels, especially in children, are the most common sites of foci of infection. Occasionally the primary focus will be found in the stomach, spleen, liver, the gall bladder or urinary tract. To consider tuberlar peritonitis an entity, or to treat it as such is confusing, whereas, if it looked on as a secondary process, due to some primary focus, we are led to search for the primary focus, and to direct treatment leading toward cure.

The intestines, fallopian tubes and mesenteric glands are the strongholds in the abdomen for primary tuberculosis.

In 1904, Dr. Will Mayo, in addressing the Mississippi Valley Medical Association, called attention to the fact that when the local lesion could be found and relieved in operating for so-called tubercular peritonitis, a cure might be expected in a much higher per cent of cases than by the performance of a simple laparotomy. In this same address he reported in detail some cases in which a simple laparotomy with the evacuation of fluid and failure to cure followed by prompt cure after the removal of tuberculous tubes.

Dr. Murphy pointed out that in tuberculosis of the fallopian tubes the fimbriated extremities were usually open, quite the opposite from the condition that exists in gonorrheal infection of the fallopian tubes, in which they are closed. In gonorrheal infections, therefore, pus tubes are common, while in tuberculosis tubal retention is much less common, and the material from the tubal process passes out from the fimbriated extremity of the tube into the abdominal cavity, causing a more or less generalized peritonitis. Such peritonitis is essentially a conservative process leading to the destruction of the noxious agents. When the source of the infection can be removed, the peritoneum returns to normal. At a subsequent laparotomy the peritoneum will be shown to be quite free from disease and without signs of past involvement, beyond adhesions in some locality that had been subjected to prolonged infection, as in the vicinity of the primary lesion.

It is true that simple laparotomy sometimes cures the peritonitis when tapping would be of no avail, because when the fluid is completely removed from the peritoneal cavity, for example by operation, the fimbriated ends of the tubes, which had been mechanically separated by the fluid from the surrounding tissues, may become adherent to neighboring structures, thus closing the ends and preventing further leakage. Under such circumstances tubal retention of the tuberculosis products results, and these tubes may be recognized as gradually increasing masses in the pelvis. Further experience has developed the fact that the tube thus closed became surrounded by a mass of adhesions, and occasionally, in the course of long months or years a spontaneous "near" cure resulted. The tubal content became caseated and was rendered more or less inocuous with the gradual disappearance of the pelvic masses, but with fixation of the pelvic organs.

The ciliated epithelium of the tubes, like the ciliated epithelium of the pulmonary tract, is very susceptible to tuberculosis. Whether the tubercle bacilli reach the tubes primarily through some other focus in the abominal cavity and then gravitate into the pelvis infecting the tubes, or whether they pass directly by the way of the vagina and uterus or through the lymphatics, is a mooted question.

When tuberculosis involves the endometrium it is usually found in children before menstruation begins or after menopause. If it does occur during normal menstrual life menstruation will have ceased, and in its place there may be a bloody discharge the result of tuberculous lesions.

In tubal tuberculosis the removal of the fallopian tubes may be expected to cure and will, unless other incurable tuberculous lesions coexist. It is not at all necessary in such cases to remove the ovaries or uterus unless they are otherwise diseased, as the other tuberculous involvement is only superficial and in no way different to that shown in the peritoneal covering of the other viscera.

Since Mayo and Murphy's illuminating experiences of tubercular peritonitis the result of tubal disease our knowledge is fairly adequate, but when the local lesion is elsewhere great difficulty may be experienced in locating and removing the primary source of the peritoneal infection. Rarely is the appendix the cause of tubercular peritonitis. Tuberculosis of the ileocecal coil is often accompanied by a localized tubercular peritonitis which is promptly relieved by the removal of the involved bowel.

Barker estimates that fifty per cent of cases of tubercular peritonitis are due to bovine tuberculosis. It is interesting to note that the English Commission on Tuberculosis showed bovine tuberculosis in forty-seven percent of the cases, and the German Commission showed it to be due to this cause in sixty-three per cent. It is possible that bovine tuberculosis gives a more favorable prognosis than human tuberculosis.

The possibilities of the cure of tuberculosis of the peritoneum by simple laparotomy, when the local focus can not be discovered and removed, are limited to the ascitic forms of the disease. It may at least be said that an open operation with careful removal of all fluid, with or without medication, has therapeutic value. It would seem, however, that the surgical profession has been over enthusiastic in its praise of the simple operation. The fibroplastic types are benefitted only if there are saculations containing fluid; but operation is contraindicted when the adhesions fill the entire abdomen without collections of fluid, or if the collections consist of multiple small pockets filled with turbid tuberculous exudate containing pus (Mayo). Operation in these cases with separation of adhesions is of little value, and often results in intestinal fistula. Fortunately the adhesion type of tuberculosis of the peritoneum giving rise to the swollen, hard abdomen is most favorable for spontaneous cure.

According to W. J. Mayo Tubercle bacilli alone tend to produce tubercular peritonitis with a minimum of adhesions, and to a considerable extent the adhesions are the result of a mixed infection, as the pyogenic bacteria that are admitted with the tubercle bacilli are shorter lived, leaving only the tubercle bacilli to be discovered at the time of operation.

In 1862 Sir Spencer Wells operated for a localized collection of fluid, thinking it was an ovarian cyst, and thus laid the foundation for many cures which have been accomplished since in similar cases of localized tubercular peritonitis.

Koenig in 1890 was the first to call attention to the value of simple laparotomy in the treatment of tubercular peritonitis, reporting 139 cases with 84 recoveries.

Shattuck in 1902 showed a medical mortality of 68 per cent and a surgical mortality of 37½ per cent in 98 cases of tubercular peritonitis at the Massachusetts General Hospital. Two-thirds of his patients were females.

Wunderlich in 1899 collected 344 cases in which the patients were treated surgically, and 176 of whom were traced. At the end of three years only 26 per cent of these were in good health.

Bircher, 1907, collected 1,295 surgical cases, and found 69 per cent of immediate cures; but only 31 per cent of these patients were well after a year or more.

Osler noted 131 females to 60 males. Curiously enough, while all the surgical cases, and for that mater all the medical cases observed showed an excess of females over males, the postmortem findings show peritoneal tuberculosis to be more common in the male.

There has been much controversy as to whether tubal tuberculosis is primary and causative or the result of tubercular peritonitis. The surgical side believe in the former theory; but even if the latter were true the surgical dictum to remove any focus that is a harbor of infection is sound. Against the gravity or descending theory is the unanswerable fact that the greatest peritoneal involvement is closest to the tubes or the infected focus which thus confesses its guilt; if ascending infection by the lymph route from the vas causes tubercular peritonitis in the male, why may not the same thing be caused in the female through an avenue that is very much more prone to invasion?

The English surgeons have strongly advocated drainage following operation for tubercular peritonitis, but the American surgeons have abandoned drainage on account of the frequency with which mixed infection has followed, often with fistulas which became feculent. After laparotomy there is a reaccumulation of fluid which is said to have a higher opsonic index and therefore a higher resistance against tuberculosis than the fluid that was originally removed. The fluid thus reaccumulated directly from the blood has been thought to contain marked sterilizing properties.

Personal experience: It has been my privilege to operate upon fifteen cases in the past eight years without operative mortality, though three of the cases have since died of pulmonary tuberculosis. I have had two cases of tuberculous infection of the incision; one of which healed after months of electric light, antiseptic and heliotherapy treatment. The other never healed. I have at present a tuberculous infection of five months standing following a laparotomy by a surgeon in Florida. Tuberculous infection of the wound is denied by many writers on the subject.

Summarizing: It will be seen that tubercular peritonitis in which surgical procedure promises relief divides itself into two groups:

First, and most favorable are those cases in which a definite anatomical portion of the peritoneal cavity is involved, such as the fallopian tubes, the ileocecal coil, which can be removed.

Second. and less favorable are those cases in which the peritoneal cavity contains a considerable quantity of fluid and no local focus of infection to be located or in which the fluid is contained in loculi composed of peritoneal adhesions dividing the peritoneal cavity into compartments containing fluid.

# OFFICIAL MINUTES OF THE PROCEEDINGS OF THE EIGHTY-EIGHTH ANNUAL MEETING HELD AT NASHVILLE, APRIL 12, 13, AND 14, 1921.

## TUESDAY, APRIL 12—FIRST DAY—

## MORNING SESSION.

The Association met in the Assembly Hall of the Y. M. C. A. and was called to order at 10:10 A. M. by Dr. W. G. Kennon, Chairman of the Local Committee of Arrangements.

The following invocation was offered by Rev. James I. Vance of the First Presbyterian Church, Nashville.

## INVOCATION

Our Heavenly Father, we come to pray for Thy blessing upon our doctors as they gather here this morning in their state convention. We thank Thee for them and for all the good work they are doing. They come to us in our hour of need, when the lights are burning low, when the heart is anxious and fear shows itself at the window. And they minister to our needs and they give us sympathy and succor and courage and hope. When the iron door of hope is almost to close in on us, we bless Thee that their strong arm comes between us and the thing we fear, and the door of hope remains open and joy continues to spread itself. We pray that Thou wilt be with them in their ministry and equip them for the work they have to do for humanity. Give them strength of body to stand the strain of hours and give them capacity to sympathize with and administer to the hearts of the people in time of need. Give them more and more wondrous skill so that they may alleviate pain and conquer disease and restore people to health and to soundness of limb. Give them power to restore the worn and wasted bodies of men and women. Bless them as they come to our homes and stand with us in the shadow. We pray Thee that Thou wilt bless them in all their efforts in life in the practice of their profession. Help them to carry the highest motive to the lowliest and humblest people. Bless them in their own homes; protect their loved ones, we pray Thee. There are perils which they themselves seek to be delivered from. Shelter us and shelter them in times of storm. Guard them while they are away from their homes and keep safely the loved ones left behind. Be with them in the duties of the convention. Help them to devise ways and means of furthering the interests of their profession. Let their influence be a stimulus to one another, and let there go out from this convention influences which will make for a sounder state, for cleaner homes, and safer living. Be with the doctors all along the journey and when their work on earth is ended, give them rest and a welcome at home at last. For Jesus sake. Amen.

Dr. Kennon introduced Dr. Perry Bromberg, of Nashville, who delivered the following Address of Welcome on behalf of the Nashville Academy of Medicine and Davidson County Medical Society:

## ADDRESS OF WELCOME BY DR. BROMBERG

Mr. Chairman and Gentlemen of the Tennessee State Medical Association:

The Local Committee of Arrangements has very unwisely assigned me the pleasing duty of bidding you welcome to Nashville. The fast growing tendency to do away with formal speech making on this occasion probably explains their selection of me, for it is a well known fact that I can neither make a speech nor amuse you with a joke. But I can, in plain and simple language, in behalf of the medical profession of this fair city, extend you a cordial and affectionate welcome.

The occasion of your visit as a body, coming as is provided by constitutional act every two years, to coincide with the meeting of the Tennessee State Legislature, is at this particular time especially auspicious. The present representatives have seen fit, in passing the general appropriation bill, to seemingly single out the State Board of Health and to refuse any funds for this most important branch of state government. They refuse to appropriate the funds necessary to maintain a department of rural nursing, to have sanitary engineers aid in malaria control and other important public health work, to teach oral hygiene in public schools, to vouchsafe the public against epidemic disease with a bacteriological laboratory, to lend aid to the already overworked physicians of state institutions by allowing them assistants, while, with but a few dissenting voices, they do not hesitate to vote themselves a generous extra gratuity.*

Yours is a glorious profession and for eighty odd years you have met as a body in this State and discussed the ills to which its people are subjected, and you are here today to continue that fight against pestilence and disease, whilst on the Hill, almost within the sound of my voice, sit those who are in power and who with the stroke of the pen, so to speak, are trying to destroy the work of scientist and to render inert the accumulated knowledge of past centuries.

Public health may be said to be the most beautiful benediction of the medical profession. All over the civilized world there are hospitals, dispensaries, alms houses and institutions for the insane, controlled in a large part by city, county, district or state. From the four corners of the earth the poor may come, from out their low tenement abode, and unwrap the rags from about them, and over their sufferings will bend the doctor who represents much of the accumulated wisdom of ages. Everywhere, every day, every hour, the people whose servants we are glad to be are profited by our efforts. Communities untenable by virtue of disease have been made tenable; epidemics, such as yellow fever and cholera, have been halted by scientists of our time, who have stood face to face with pestilence, oftentimes staggering in their own sickness, and fought until they have conquered or succumbed. And still, before the echo of our achievement dies away, our representatives, in a false effort towards economy, deny our most important department the wherewith to accomplish more, or to utilize that which we already know.

My friends, I realize that this is perhaps not the time to air our grievances with our political friends and I am not unmindful that it is considered my duty to say gracious things, even perhaps in a flattering way, about you, but one who loves his profession, who regards as sacred the things it has accomplished, and who takes pride in the great work it is doing, can not help but look with much concern upon the opposition offered to sound learning and true scientific advancement by the more than two million Christian Scientists, and hundreds upon hundreds of thousands of followers of chiropractics, osteopathy and other absurd "pathies," and "isms," and last, but not least, by reactionary legislative bodies.

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*These appropriations removed by the House, were restored before the final passage of the General Appropriations except for the Division of

Now gentlemen, I commend you to your labors. It is our earnest wish that wisdom, forbearance, and kindly consideration may guide you in your debate; that we may have a profitable and enjoyable meeting, welding stronger the ties of friendship, and exalting us in the eyes of our fellow men that we may better serve the cause of humanity.

## RESPONSE TO THE ADDRESS OF WELCOME BY DR. I. A. MC SWAIN, PARIS.

Mr. Chairman and Members of the Tennessee State Medical Association: I hardly feel capable of making a due and creditable response to the address written and read by my friend, Dr. Bromberg. He has said some good things in his address.

We fellows living out in the country places like Paris, Jackson, Chattanooga, and occasionally Knoxville, take great delight in attending the State meeting when it is held in Nashville. We make our arrangements to get away and are in a hurry to come. We want to be with you as much as we can, and we turn over our patients to those incompetents who never attend a meeting except with diffidence and anxiety. It is the best we can do under the circumstances. If we have not got the money to come, we borrow it from the bank. We are willing to wear our own old clothes, if necessary, to come to these meetings.

Gentlemen, I did not know Dr. Bromberg was going to refer to some of the things he did in his address. We, as members of the medical profession, are unlike to some degree, and very largely, the body of gentlemen he referred to. They were asked to give a few thousand dollars to help along the health movement and they voted it down, and we poor fellows of the Red Cross supplied $10,000.00 to be used. These gentlemen did not hesitate to vote $50,000.00 for themselves. Some of the members of the body to which he has referred did not have enough money to buy clothes with and had to borrow clothes to get to the legislature. I heard of one man who always had his hand held behind him when anybody wanted a support, as much as to say, "How much is there in it?"

Mr. Chairman, we are not here to discuss Tennessee in that manner. There are one or two things that have occurred in and about Nashville I might refer to. A few years ago there was a great ecclesiastical body to which I happened to belong, and a certain great capitalist said he would help along the medical profession of the state and did offer to do so, but I am sorry to say that great body of highbrow thinking men voted down any such proposition as that. I never knew who gave them the power to vote it down, and things have miscarried again and again, and they threw away one of the finest literary institutions in the South as the result of prejudice against doctors. I don't understand it. These doctors have done their practice all along for nothing. We are glad to do it and we are not against the ministry, but they made an egregious blunder. We are the most disinterested fellows in the whole world. The doctor is glad to do anything for anybody at any time.

In closing, I wish to say that we are mighty glad to be here, and we accept the very cordial and hearty welcome that has been extended to us by Dr. Bromberg. (Applause.)

At the close of the response to the address of welcome, Dr. Kennon announced that the Nashville medical profession would give a banquet at the Golf and Country Club Wednesday, 7 P. M., to which all members of the Association and guests were cordially invited.

He then introduced the President of the Association, Dr. L. L. Sheddan, Knoxville, who delivered an address on "The Present Status of Medical Practice and of Medical Education."

Papers were then read and discussed as follows:

Dr. J. T. Moore, Algood, read a paper on "Gastric and Doudenal Ulcer," which was discussed by Drs. Fox, Warr, Sheddan, Roberts, and Gaines.

Dr. I. A. McSwain, Paris, read a paper entitled "Cock-Sureness in the Practice of Medicine."

This paper was discussed by Drs. Jones, Roberts, Padgett, McSwain, and in closing by the essayist.

On motion, the Association adjourned until 1:30 P. M.

### FIRST DAY—AFTERNOON SESSION

The Association reconvened at 1:30 P. M., and was called to order by Vice-President, Dr. P. K. Lewis, Doyle.

Dr. John B. Haskins, Chattanooga, read a paper entitled "The Preoperative and Postoperative Management of Abdominal Operations," which was discussed by Drs. Campbell, Sheddan, and in closing by Dr. Johnson.

Dr. W. K. Sheddan, Columbia, read a paper entitled "Passing Away—Fading Out."

Dr. J. J. Shea, Memphis, read a paper on "Vertigo," which was discussed by Dr. Padgett, and in closing by the essayist.

Dr. Carroll C. Turner, Memphis, read a paper, entitled "Encephalitis Lethargica" which was discussed by Drs. Breeding, Sheddan, Warr, Litterer, after which the discussion was closed by the essayist.

Dr. E. C., Ellett, Memphis, read a paper on "Trachoma and Folliculosis," which was discussed by Drs. West, Zirkle, Bishop, Miller, West, and in closing by the essayist.

Dr. Jesse C. Hill, Knoxville, followed with a paper entitled "Luminal in the Treatment of Epilepsy."

This paper was discussed by Drs. Farmer, Waller, Smith, Padgett, Dean, Hill, Runyon, Sheddan, and in closing by the essayist.

On motion of Dr. Padgett, the Association adjourned until 8 P. M.

### FIRST DAY—EVENING SESSION

The Association reconvened at 8 P. M. and was called to order by the President.

Dr. Percy H. Wood, Memphis, read a paper entitled "Report of a Case of Extraperitoneal Pyosalpinx, with Operative Technique Used in the Case."

This paper was discussed by Drs. Dixon, McGehee, Gallagher, and in closing by the essayist.

Dr. David R. Pickens, Nashville, read a paper entitled. "Diverticulitis of the Sigmoid," which was discussed by Dr. Brandau.

Dr. Irving Simons, Nashville, read a paper entitled "Some Urological Cases Diagnosed by Means of Pyelography," which was discussed by Dr. Smith, and in closing by the essayist.

Dr. Duncan Eve, Jr., Nashville, read a paper entitled "The Treatment of Neuralgia of the Fifth Nerve by Injection of the Gasserian Ganglion."

The paper was discussed by Drs. Harris, Johnson, and in closing by the essayist.

On motion the Association adjourned until Wednesday, April 13, 8:30 a. m.

### SECOND DAY—MORNING SESSION.

Wednesday, April 13.

The Association met at 9 a. m., and was called to order by Vice-President Lewis.

Dr. Otis S. Warr and Dr. L. C. Sanders, Memphis, read a joint paper entitled "The Clinical and Operative Study of Forty Cases of Cholecystitis."

Dr. W. O. Floyd, Nashville, read a paper entitled "X-Ray Diagnosis of Gall-Stones and Gall-Bladder Disease."

Dr. W. D. Haggard, Nashville, read a paper entitled "Ulcer of the Stomach and Duodenum."

Dr. C. P. Fox, Greeneville, read a paper entitled "Some Observations on Gall-Bladder Surgery."

Dr. J. A. Crisler, Memphis, read a paper entitled "Surgery of the Gall-Bladder."

The symposium on gall-bladder diseases was discussed by Drs. Johnson, Floyd, Burns, Holder, Kimbrough, Fancher, after which the discussion was closed by Drs. Warr, Floyd and Fox.

Dr. Richard A. Barr, Nashville read a paper entitled "Lacerations of the Perineum."

Dr. L. E. Burch, Nashville, followed with a paper on "Lacerations of the Cervix."

These two papers were discussed together by Drs. Tucker, Anderson, Black, Floyd, and in closing by Dr. Burch.

Symposium on Syphilis.

Dr. John A. Witherspoon, Nashville, read a paper entitled "Principles in the Clinical Recognition of Syphilis and the Syphilitic.''

Dr. Tom R. Barry, Knoxville, read a paper entitled ''The Initial Lesion of Syphilis and Its Differential Diagnosis.''

Dr. Edward Clay Mitchell, Memphis, read a paper on ''Reactions in the Newborn and the Growing Child.''

Dr. R. C. Derivaux, Nashville, read a paper on ''The Laboratory Diagnosis of Syphilis.''

The symposium on syphilis was discussed by Drs. Smith, Padgett, Litterer, Sheddan, Somerville, Guerin, Warr, Adams, and in closing by Drs. Witherspoon, Barry, Mitchell and Derivaux.

On motion, the Association adjourned until 2 p. m.

## SECOND DAY—AFTERNOON SESSION

The Association reconvened at 2 P. M., and was called to order by Vice-President Lewis.

Dr. H. Quigg Fletcher, Chattanooga, read a paper entitled ''Blood Transfusion; Its Therapeutic Uses.''

This paper was discussed by Drs. Williamson, Newell, Barr, Warr, Burch, and in closing by the essayist.

Dr. W. H. Cheney, Chattanooga, read a paper entitled ''Diagnosis of Disease of the Kidney and Ureter.''

Discussed by Drs. Shoulders, and in closing by the essayist.

Dr. R. H. Perry, and Dr. Sam P. Bailey, Nashville read a joint paper entitled ''Septic Infection of the Urinary Passages in Children.''

Discussed by Drs. Waller, Roberts, Cheney, and in closing by the essayist.

Dr. H. C. Guerin, Dickson, read a paper entitled ''Prostatism from a General Practitioner's Standpoint,'' which was discussed by Drs. Waller, Zirkle, Brandau, Morris, Sheddan, and in closing by the essayist.

On motion, the Association adjourned until 8:30 a. m., Thursday, April 14.

## THIRD DAY—MORNING SESSION

Thursday, April 14.

The Association met at 8:30 a. m., and was called to order by the President.

Dr. J. M. King, Nashville, read a paper entitled ''Eczema and Its Management.''

Discussed by Drs. Padgett, Roberts, Waller, and in closing by the essayist.

Dr. Jack Witherspoon read a paper entitled ''Raynaud's Disease; Report of a Case and Suggestions as to Treatment.''

Dr. W. Scott Farmer, Nashville, followed with a paper entitled ''Psychosis and Age; Review of 1200 Recent Admissions to hte Central Hospital.''

This paper was discussed by Drs. Smith, Hardin, Roberts, Brandau, and in closing by the essayist.

At this juncture the Secretary read the list of officers for the ensuing year as elected by the House of Delegates.

For details see minutes of the House of Delegates.

The Secretary stated that the House of Delegates in the rush of business toward the close had neglected to select a place for the next meeting. He stated that a warm and cordial invitation had been extended to the Association to hold its next meeting in Memphis, and accordingly moved that this invitation be accepted.

Seconded and carried.

Dr. Sheddan, the retiring President, introduced his successor, Dr. William Britt Burns, of Memphis, who expressed his appreciation for the great honor conferred upon him in being elected President of the Association, and said he would pledge himself to do all in his power to make the next meeting at Memphis a success.

Dr. William Sailer Anderson, Memphis read a paper entitled ''The Use of Radium in Bleeding of the Menopause.''

Dr. Shields Abernathy, Memphis, read a paper entitled ''Radium in Gynecology.''

These two papers were discussed together by Drs. Haggard, King, Cowden, Newell, Crutchfield, and in closing by the essayist.

Dr. R. E. L. Smith, Knoxville, read a paper entitled ''Some of the Needs of our State Hospitals for the Insane.''

The paper was discussed by Drs. Sheddan, Farmer, Adams, and in closing by the essayist.

Dr. E. T. Newell, Chattanooga, read a paper entitled "Report of Some Unusual Obstetrical Complications Necessitating Operative Interference; Ruptured Uterus, Twisted Ovarian Pedicle, Dermoid Cyst Blocking the Pelvic Outlet."

Discussed by Drs. Holder, Fancher, Glasgow, Sheddan, Haggard, and in closing by the essayist.

On motion, the Association adjourned until 2 p. m.

## THIRD DAY—AFTERNOON SESSION

The Association re-convened at 2 p. m., and was called to order by the President.

Dr. C. N. Cowden, Nashville, read a paper entitled "The Modern Surgical Operation," which was discussed by Dr. Roberts.

As there was no further business, scientific or otherwise, to come before the meeting, on motion, the Association then adjourned to meet in Memphis in April, 1922.

OLIN WEST, Secretary.

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# EIGHTY-EIGHTH ANNUAL MEETING OF TENNESSEE STATE MEDICAL ASSOCIATION

## Minutes of House of Delegates

The House of Delegates met in the Assembly room of the Y. M. C. A., at Nashville, Tennessee, Tuesday, April 12, 1921.

The meeting was called to order by the Chairman, Dr. L. L. Sheddan.

Dr. Sheddan: We will now proceed with the regular order of business, which first calls for the reading of the minutes of the previous meeting.

Dr. West: In order to facilitate matters and consume less time I suggest that we dispense with the minutes of the previous meeting owing to the fact that they were published in the Journal and all members have had an opportunity to read.

Dr. Sheddan said it was a good suggestion and upon motion duly put and carried the reading of the minutes was dispensed with.

On a call of the roll the following delegates responded to their names by county:

W. G. Kennon, Davidson.
D. J. Roberts, Davidson.
C. M. Lovell, Dickson.
J. P. Grisard, Franklin.
C. A. Abernathy, Giles.
S. W. Woodyard, Greene.
H. Q. Fletcher, Hamilton.
T. E. Abernathy, Hamilton.
I. A. McSwain, Henry.
J. C. Hill, Knox.
W. W. Potter, Knox.
I. J. Ellis, Blount.
S. M. Herron, Madison.
Jere Crook, Madison.
M. A. Beasley, Maury.
R. C. Kimbrough, Monroe.
J. W. Brandau, Montgomery.
C. V. Stevenson, Hickman.
J. T. Moore, Putnam.
G. P. Zirkle, Roane.
B. F. Fyke, Robertson.
H. B. Everett, Shelby.
E. C. Ellett, Shelby.
J. J. Shea, Shelby.
Richmond McKinney, Shelby.
C. C. Turner, Shelby.
J. C. Bridges, Smith.
L. M. Woodson, Sumner.
L. A. Yarborough, Tipton.
C. B. Gillespie, Tipton.
R. L. Maloney, Warren.
H. G. Edmondson, Weakley.
W. M. Johnson, White.
A. F. Richards, White.
L. S. Tilson, Wilson.
S. R. Miller, Knox.
O. Dulaney, Dyer.

Dr. Sheddan.—Next on the program is the selection of a nominating committee. It is necessary that the members from each grand division of the State get together in separate groups and select three members from each division for the nominating committee. We will now recess for five minutes and the members will gather in groups in each section of the room. The President was from West Tennessee last time.

Middle Tennessee selected B. F. Fyke, W. C. Dixson and A. F. Richards.

West Tennessee selected O. Dulaney, H. G. Edmondson, J. L. McGhee.

East Tennessee selected S. W. Woodyard, S. R. Miller, H. Q. Fletcher.

These nine delegates were then declared by the President to constitute the Nominationg Committee.

Dr. Sheddan.—Now you gentlemen get together and select the o__cers for nomination as soon as convenient. The nomination of officers takes place on the last day of the meeting.

Dr. Sheddan.—We will now have the report of the Secretary.

Report read by Dr. Olin West, Secretary, (was published in the Journal for April).

Dr. West.—Mr. Chairman, before we go any further I would like to know what is expected of me as Secretary and also to know what are the duties of the other officers of the Association in such cases as referred to in the letter from the Secretary of the Sullivan-Carter-Johnson County Medical Society.

Dr. D. J. Roberts.—I move that the Report of the Secretary be accepted as read and approved.

Motion seconded by Dr. Abernathy.

The motion carried and the report was accepted and approved.

Dr. Roberts,—We have the same thing to contend with in Davidson County. I think it should be the duty of the State Board of Medical Examiners to revoke the license of any licensed physician who is guilty of such abominable practices, and I think we would see to it that they are active in this matter.

Dr. Sheddan.—I think that Dr. Roberts is correct. That is my opinion in regard to the law on the subject that the State Board of Medical Examiners have the power to revoke the license of such parties and any licensed physician guilty of immoral, injurious and unethical practices, and I think the facts should be presented to the State board in order that they may pass on it.

Dr. C. A. Abernathy.—Of course there is the question of whether this man is a licensed physician. If he is not a licensed physician of course we can do nothing with him in the way suggested.

Dr. Sheddan.—I think I am familiar with the case in question, and that the man is a legally qualified physician in the practice of medicine; so it would be the duty of the State Board to revoke his license.

Dr. Jere Crook.—I think the Chairman is eminently correct in this matter. We had something similar to happen in Madison county. A doctor there was openly and flagrantly violating the law, and several of us managed to get hold of one of his patients and take her statement, for she was at death's door. Afterwards we managed to finally pull her through, but when she thought she was dying she made the statement to us and we swore to it and sent it to the Board. He threatened to kill me but I paid no attention to that and the Secretary of the Board told him he thought it would be better for him to go West; so he moved out and has not been heard of since.

Dr. Richards.—I make the motion that the Secretary be authorized to notify the Society of Sullivan, Carter and Johnson Counties to get the racts in the case and prove that this man is guilty of the charges preferred and send them in to the State Board of Medical Examiners.

Dr. C. A. Abernathy.—I think if this man is a patent medicine or quack doctor without a license that if the charges can be proved against him that it would be the duty of the attorney general to prosecute him. The Board of Medical Examiners would only have the power to revoke his license. The power of the Board is limited as to prosecution in such cases. The suggestion of Dr. Crook that this be brought before the attention of the Board is very advisable and the Board will proceed to investigate the matter to the limit.

Dr. Sam White.—We have had several cases like that in Williamson County. One is supposed to have a license from Germany, but he has never been able to produce it. We can not get a jury to convict in these cases, as many members in the jury claim they are doing good in the country and we have never been able to get a jury that will convict them. There is a Dr. Reynolds now advertising in

Nashville. I do not know whether he has a license or not, but he runs great page ads in all the papers.

Dr. Sheddan.—It is moved and seconded that the Carter, Johnson and Sullivan Society be instructed to take the necessary steps to produce the proper proof in the case and submit it to the Board of Medical Examiners.

Dr. West.—Mr. Chairman, Before you act upon this motion I would like to get some further information as to what is expected of me as Secretary in these matters.

Dr. Roberts.—I want to say that the man in this town who is running the full page ads promises to cure everybody of anything. No man can say that he will cure a person of anything, because he does not and can not know. It is the duty of the Board of Medical Examiners to prosecute these people and the Association should furnish the proof necessary in such cases and the State should furnish funds to prosecute them, and if they won't I will furnish the funds myself to abolish these nefarious practices.

Dr. Abernathy.—In handling this prosecution it would be the duty of the attorney general to prosecute these people after the Medical Societies have given him good and su__cient proof of their guilt, and I believe if they would get after the attorney general it would be done, as a protection to humanity.

Dr. Sheddan.—I want to ask Dr. Abernathy, do you think it would be possible to prosecute a man in the courts of the country before his license had been revoked? I would like to have a ruling from the attorney general on that point.

Dr. Abernathy,—It is not specifically clear.

Dr. Sheddan.—These men who advertise are not violating any law if they are legally qualified physicians; they have license and are registered. It is not necessary that they be convicted by a jury, so it does not take money to convict these people. The chances are they will have to run when their licenses are revoked.

Dr. A. F. Richards.—It seems to me that this matter is a little complicated in that we look to the State Board of Medical Examiners to supply the punishment before knowing that there is anyone to be punished. But so far as the medical profession is concerned, it is through their local county societies where these cases are brought to the attention of the members, that they can investigate these matters and secure proof which can in turn be turned over to the Board of Medical Examiners; the Board of Medical Examiners can then more clearly understand what harm has and is being done and then they will be in position to take the matter up with the courts if necessary.

Dr. Roberts.—When license is revoked we have a law that will prevent them from practicing without -a license and they can be prosecuted under this law.

Dr. Sheddan.—All members in favor of the motion will say aye.

The motion carried.

Dr. Sheddon.—Next on the program is the report of the Treasurer.

The Secretary read the Treasurer's report, which showed total receipts $11,750.11, including balance from previous year and including medical defense assessments sent in to the Secretary and transmitted to the Chairman of Committee on Medical Defense. Total disbursements $7,678.40. Balance on hand April 1, 1921, $4,071.71.

Advertising receipts $2,956.75. Membership receipts (including medical defense assessments sent to Secretary and transmitted by Treasurer to Chairman of Committee on Medical Defense) $6,187.50.

Canceled checks returned $7,592.32.

Outstanding checks Nos. 482, 563, 565, 570, 571, and 572, total, $86.08.

Actual balance on hand April 1, 1921, $4,071.71.

Dr. Sheddan.—You have heard the report of the Treasurer, I will entertain a motion for the appointment of an Auditing Committee to audit the books.

Dr. Roberts.—Mr. Chairman, I make that motion. Seconded, put and carried.

Dr. Sheddan.—I will appoint on this committee, Dr. Dulaney and Dr. Yarborough, and Dr. Tigert.

Dr. Sheddan.—Next on the program is the reports of the committees.

Dr. West.—Before the other committees report I would like to read certain amendments to the Constitution and By-Laws which should be acted on at the earliest possible moment, as if they be put into effect they will apply at this meeting and under the Constitution have laid over for one year.

BE IT RESOLVED by the House of Delegates of the Tennessee State Medical Association, That Section 1, Article 8, of the Constitution of the Tennessee State Medical Association be and is hereby amended to read as follows: The officers of this Association shall be a President, Speaker of the House of Delegates, three Vice-Presidents, a Secretary, a Treasurer, three Trustees of the Journal, and ten Councilors, one of whom shall be from each congressional district of the State.

That Paragraph 3 of Section 11 of the Constitution be and is hereby amended to read as follows: "The President, Secretary, and Speaker of the House of Delegates shall be members of the Council, ex officio, and any five Councilors shall constitute a quorum."

That Chapter 6, Section 1 of the By-Laws of the Tennessee State Medical Association be and is hereby amended by adding thereto the following: "Section 5. It shall be the duty of the Speaker of the House of Delegates to preside at all meetings of the House of Delegates and to exercise all the powers and perform all the duties heretofore devolving upon the President of the Association when presiding over the House of Delegates."

Offered by A. F. Richards, Sparta.

Presented at the 87th Annual Meeting at Chattanooga, April 6, 1920, and carried over to be acted upon at the 88th Annual Meeting at Nashville, April 12, 13, 14, 1921.

Amend Article VIII, Section 3, of the Constitution of the Tennessee State Medical Association as follows: After the words "except the Treasurer" add the words "and the Councilors."

After the words "no person" add the words "except the Trustees and the Councilors."

At end of Section 3 add the words: "The Councilors shall be elected on the second day of the annual session. Nominations shall be made by any members of the House of Delegates and election may be by acclamation."

Offered by Dr. S. R. Miller, Knoxville.

Presented at 87th Annual Meeting at Chattanooga, April 7, 1920, and carried over to be acted upon at 88th Annual Meeting at Nashville, April 12, 13, 14, 1921.

## AMENDMENT TO BY-LAWS

Amend Chapter V, Section 1, of the By-Laws as follows: After the words "all elections" add the words "except the Councilors."

Amend Chapter V, Section 3, of the By-Laws as follows: After the words "election of officers" add the words "except the Councilors." At the end of this Section add the words: "The five Councilors shall be elected for two years on the second day of the annual session and, if practicable, immediately following the Councilors' reports."

Amend Chapter VII, Section 1, of the By-Laws as follows: Strike out the word "daily". after the words "It shall meet" strike out the words "on the last day of the annual sesion of the Association" and substitute therefor the words "after the election of Councilors on the second day of the annual session."

Offered by Dr. S. R. Miller.

Presented at 87th annual meeting at Chattanooga, April 7, 1920, and carried over to be acted upon by the 88th annual meeting at Nashville, April 12, 13, 14, 1921, after proposed amendment to constitution has been acted upon.

Dr. Sheddan.—Gentlemen, you have heard these amendments to the constitution, what is your pleasure.

Dr. Miller.—I move that they be adopted.

Dr. Abernathy.—I second the motion.

The amendments to the Constitution were then acted upon and each was adopted, after which the amendments to the By-Laws were duly adopted.

Dr. Sheddan.—The councilors appointed at this meeting will be appointed to serve at the next meeting a year from now, and under the amendments to the constitution it will give them an opportunity to get together at this meeting. We can elect the Speaker for the next session, which will avoid complications which are usual with appointments on the last day as they leave without knowing who really are appointed and have no opportunity to formulate plans.

Dr. Gallagher.—It seems that each House of Delegates should elect its own speaker, and until that time the President would be the presiding o--cer over the House of Delegates, the speaker to be appointed by them upon the first day of the session.

Dr. West.—The point is it would require an amendment to the constitution and in order to make it effective at this meeting it should have been prepared one year ago as the constitution provides. The amendments relative to the election of conucilors were prepared by Dr. S. R. Miller one year ago, to be acted on at this meeting.

Dr. Sheddan.—We will ask Dr. Miller to explain these amendments a little more fully.

Dr. Miller.—As it has been the custom to elect the officers on the last day of the session to preside at the following session it causes a great deal of dissatisfaction and inconvenience as they have no time to get together and make plans, so by these amendments they can be elected on the second day and it will give them an opportunity to get together and formulate plans.

Dr. Sheddan.—The next order of business is reports of committees.

Dr. West.—It is now 2:30 and I think we will have time to do all that tomorrow morning.

A motion to adjourn was made and seconded.

Motion carried. Adjourned until 8:30.

## SECOND DAY

The House of Delegates was called to order at 8 o'clock, by the Chairman, Dr. Sheddan.

Minutes of the previous session read and adopted.

The name of Dr. Williams of Memphis was added to the roll call.

Committee reports was the next order of business.

Comittee on Cancer.—Report read by Dr. Haggard.

Chairman.—(This report will appear in the Journal next month.)

Dr. Fyke moved that the recommendation of the Committee with respect to the publication and distribution of literature on cancer be adopted and that the committee be authorized to carry out the recommendations. Motion seconded, put and carried.

Committee of Public Policy and Legislation: Dr. Tigert as Chairman of the Committee, explained the great difficulty in getting any measure of importance through the last legislature. The proposed Nurses Bill, which was considered by the Committee to be harmful legislation was defeated, as were several bills seeking to destroy the medical practice laws. An effort was made to secure the passage of a bill to prevent the institution of suits for alleged malpractice after the expiration of one year, but this effort failed. Thanked Drs. Bryan, Witherspoon and Burch for their able assistance.

Report accepted and approved.

Dr. Tigert asked that letters of thanks be sent by the Secretary of the Association to Senators Anna Lee Worley, Durham, Dorris, and McGugin for their courtesies and efforts.

Suggestion approved and adopted and the Secretary was instructed to act accordingly.

Dr. West made motion that rising vote of thans be extended Dr. Tigert for his interest in the Association and valuable work done by him during the recent legislature.

Motion Carried.

Dr. West explained the great difficulty in getting the Legislative committee together, and stressed the fact it would be so much more convenient to have the members of this committee live in Nashville owing to the fact that it is necessary for them to watch closely and spend most of their time in the work.

Committee on Scientific Work.—Dr. West stated that the program was submitted as the report of the committee.

Committee on Memoirs.—Made no report.

Committee on Medical Defense.—Report read by Dr. S. R. Miller, Chairman; approved and accepted. The report is as follows:

To the House of Delegates of the Tennessee State Medical Association:

Mr. Chairman and Gentlemen.—Your committee on Medical Defense herewith submits the seventh annual report of this work.

In the calendar year of 1920, Medical Defense Fees were paid by 1,300 members. On April 1st last year, 986 had paid, and on the same date this year 913 have paid. A detailed report of each county for the last year and to April 1st this year, is set forth in exhibit "A" herewith submitted.

### EXHIBIT "A"

List of Counties, Number Paying for Medical Defense.

| County | 1920 | 1921 |
|---|---|---|
| Anderson | 11 | 12 |
| Bedford | 13 | 11 |
| Blount | 20 | 16 |
| Bradley | 16 | 0 |
| Campbell | 24 | 6 |
| Carroll | 5 | 0 |
| Chester | 4 | 0 |
| Cocke | 8 | 0 |
| Coffee | 6 | 0 |
| Crockett | 0 | 0 |
| Cumberland | 3 | 2 |
| Davidson | 187 | 122 |
| Dickson | 9 | 8 |
| Dyer | 21 | 0 |
| Fayette | 0 | 0 |
| Franklin | 7 | 0 |
| Gibson | 21 | 17 |
| Giles | 4 | 1 |
| Greene | 28 | 14 |
| Grundy | 7 | 2 |
| Hamblen | 16 | 15 |
| Hamilton | 92 | 15 |
| Hardeman | 0 | 0 |
| Haywood | 8 | 0 |
| Henderson | 10 | 9 |
| Henry | 1 | 9 |
| Hickman | 13 | 0 |
| Jackson | 7 | 0 |
| Jefferson | 12 | 3 |
| Knox | 123 | 110 |
| Lake | 1 | 0 |
| Lauderdale | 28 | 13 |
| Lincoln | 18 | 4 |
| Louden | 8 | 8 |
| McMinn | 5 | 9 |
| Macon | 7 | 7 |
| McNairy | 15 | 3 |
| Madison | 33 | 31 |
| Marshall | 9 | 1 |
| Maury | 33 | 24 |
| Monroe | 15 | 0 |
| Montgomery | 10 | 0 |
| Obion | 8 | 1 |
| Overton | 6 | 5 |
| Polk | 10 | 11 |
| Putnam | 14 | 13 |
| Rhea | 1 | 0 |
| Roane | 13 | 17 |
| Robertson | 5 | 9 |
| Rutherford | 8 | 16 |
| Scott | 10 | 9 |
| Sevier | 0 | 0 |
| Shelby | 245 | 196 |
| Smith | 7 | 9 |
| Stewart | 0 | 0 |
| Sullivan, Carter-Johnson | 0 | 0 |
| Sumner | 16 | 18 |
| Tipton | 27 | 11 |
| Unicoi | 0 | 0 |
| Warren | 3 | 5 |
| Washington | 25 | 25 |
| Weakley | 14 | 3 |
| White | 14 | 14 |
| Williamson | 7 | 6 |
| Wilson | 3 | 8 |
| Morgan | 5 | 0 |
| Dekalb | 4 | 0 |
| Total | 1300 | 913 |

Our last report showed 21 suits pending or reported unsettled. One of that number appears to have been only a threat, and so far as known to the committee has not been made of record in the court proceedings. We therefore had twenty suits from the preceeding year.

Seventeen new suits have been referred to this committee, but the committee did not accept two of these. One had not paid the Medical Defense Fee, and one was not a malpractice suit and did not come within the jurisdiction of this committee. Therefore we have had 35 suits at issue or unreported during the period since our last report.

During the year, three cases took a non-suit, and two other cases were thrown out of court, but one of the non-suit cases has already been revived, thus leaving four apparently settled. One other suit was compromised by the doctor himself when we were ready for trial. This was without the advice of the committee or any expense to the Association. Three cases have been won by trial, one of which went to the higher court. We have now twenty-seven cases at issue, or unreported as ended. Several of these will not come to trial, and some already may have been thrown out of court, and no report made to the committee or possibly closed without the defendant's positive knowledge.

The committee regrets to report that we are not able to continue the old relation with our General Counsel. Our relation with them during the seven years since the beginning of this feature of our Association's work, has been very pleasant, but the firm has reorganized by taking in two active men, who each have a considerable clientele, and the firm, though our relations have been most pleasant, feels that they can not afford to represent us as General Counsel for the fees which we have paid in the past, and both they and the chairman of this committee feel that the fee that they would be willing to make us for future work would be one that we could not afford to pay from our small income. It therefore devolves upon us, to secure other General Counsel, or to try to carry on the work without a General Counsel.

It seems that the committee, with the advice of the local members of the profession in the various sections of the State, should be able to employ satisfactory counsel to defend our members. It does not appear that we have any questions of the constitutionality of our cases, and like problems, and it is principally the selection of suitable local counsel, who has the ability and desire to see that no injustice is done our members in these suits.

Our General Counsel has expressed the willingness to represent our Association in our local county, Knox, upon terms which we think would be just and about the same as has been carried out in a good many of the suits tried.

If you, the delegates representing the State Association, decide to try to handle the matter through the committee and local counsel during the coming year, arrangements should be effected in advance with suitable counsel in the various larger cities and sections, and if, suits are brought in the smaller ones, further arrangements can then be made with local counsel.

It seems that our malpractice suits will be more numerous now that the compensation law prevents the plaintiff and the lawyers from filing suits in any cases of injuries occurring within the State.

Many of the insurance companies have advanced their rates from $10.00 to as high in some cases as $50.00 per year, for the protection of physicians. This is probably due in part to the more frequent occurrence of these suits, to the higher cost of their counsel, as well as the higher overhead charges of the insurance companies.

It may be that we can not carry on this work at the present assessment fee. If the winding up of the twenty-seven cases on hand should be necessary today from the funds in the hands of the Treasurer of our committee, we feel that all bills could not be met. We have likewise had some difficulty in securing counsel in some sections at fees that we considered reasonable. In one case the counsel expected a fee from $300.00 to $500.00, when a non-suit was taken, without the case going to trial.

Your committee therefore wishes to place these facts before you, and ask you, as delegattes to the State Association, to determine just what is the most feasible and best plan for the future prosecution of this work.

Many of our members are also carrying old line insurance, which provides for defense, and the payment of any judgment rendered against them, and some suits have been defended without any notification of your committee, but many of our members do not deem it necessary to carry insurance, as long as they have the moral and financial support of this Association, and thus far we have no judgment rendered against us.

We believe that the work of this Association, through this committee, is doing much to unify and solidify organized medicine.

We do not wish for a moment to defeat the cause of any one who has a just claim against the doctor, but we are using our united and best effort to defeat the many unjust claims made against our members by irresponsible citizens, and nefarious lawyers, who would gladly shoulder an unjust judgment on our members. We are glad to say that it is very rare that a lawyer who stands well as a man, and at the bar, will prosecute members who are doing more good, and at less cost, than any other class of citizens in the State.—S. R. Miller, Chairman, Jere L. Crook, Treas., H. M. Tigert.

## PEOPLES SAVINGS BANK
### Jackson, Tenn.

April 12, 1921.

Dr. J. L. Crook,
Care Hermitage Hotel,
Nashville, Tennessee.

Dear Dr. Crook:

Confirming our telegram of today, we wired you as follows:

"You have on deposit with us as treasurer seventeen hundred eighty four dollars ninety three cents."

With best wishes, we remain,

Yours very truly,

Carl Williams,
Assistant Cashier.

Upon motion, duly seconded, put and carried, the Committee on Medical Defense was ordered continued and given authority to arrange for counsel.

Committee on Conservation of Vision.—No report. (Report submitted later.)

Committee on Public Health and Instructions, made no report.

Committee on Hospitals.—W. S. Farmer, Chairman stated the committee had not yet been able to get together, but would try to report at one o'clock.

Report of Delegates to A. M. A. was read by Dr. Newell, accepted and adopted..

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Chattanooga, Tenn. April 12, 1921.

To the House of Delegates, Tennessee State Medical Association.—

### REPORT OF EDWARD T. NEWELL,
Chattanooga.
Delegate to the American Medical Association.

As one of your Delegates to the American Medical Association I have the following report to make:

The last meeting as you know was held at New Orleans, Louisiana, April 26th to April 30th, 1920. The meeting was six weeks earlier than usual, the climatic conditions in New Orleans being such that it was deemed better to hold an early meeting before the hot weather. The Orleans Parish Medical Society had assured the House of Delegates of the American Medical Association at the Atlantic City Meeting, that they could take care of the members of the American Medical Association at this meeting, having plenty of hotel accommodations and ample facilities for the meeting. There were between four and five thousand members of the Association present; a very large attendance for a city so far south. The exhibits were held at the Tulane University Medical Department, and the sections of the Association were held at the different hotels. The public meetings were held at the Armory and the Athenaeum, and except for the general meeting when the President's address was delivered, there was ample room to accommodate all those who wished to attend. One of the special social features of the meeting was the Mardi Gras ball given to the members and their families. This was carried out on the same elaborate lines as the carnival balls and proved to be very interesting. The papers of the different sections were up to the usual standard, and the meeting, from a scientific standpoint, was a success. The arrangement committee had done everything in their power to make the entire meeting a success and it was the general opinion that they had made good their promises when asking for the meeting at Atlantic City. Your Delegate was pleased with this as he had worked hard to bring the meeting to New Orleans, the only Southern city large enough to entertain the A. M. A. The next meeting of the Association goes to Boston the fist week in June.

In the House of Delegates there were two special features which I would like to stress.

First, the amendments to the Constitution and By-Laws. There were many changes made but they were of no special significance, the changes being principally in the wording of the different articles and they did not in any particular sense change the former meanings of the former meanings of the Constitution and By-Laws. The reading of the articles as changed, while it took up considerable time, did not provoke much discussion and everything passed harmoniously.

Second, and perhaps the most interesting topic brought before the House of Delegates at this meeting, was the opposition which was manifested against compulsory health insurance. The subject seemed to have been thoroughly threshed out among the members before they came to the New Orleans meeting and all were of one accord in denouncing it and promised their support to prevent its entry into the American medical profession. When the time came for the vote as to the action to be taken against compulsory health insurance, the Delegates from each state vied with each other to gain the floor to express their opposition to any such measure being implanted in the United States. Where it has been tried in Germany and England, it has been found to work not only against the interest of our great profession, but also against the laety in general. This is a subject which every would work to the detriment of every doctor in this great State. It has already popped up in the New York legislature and in the Ohio General Assembly and in many other states, and the doctors in these states have done splendid work in keeping it out of their respective states up to the present time.

In conclusion, I may say that Dr. Hubert Work of Denver, Colorado who has presided over the House of Delegates of the American Medical Association for the past twelve years, was unanimously elected to the Presidency of the American Medical Association for the coming year. He has made a brilliant mark as a presiding officer in the House of Delegates and I am sure will preside with the same ability and yield the same influence over the general association that he has done in the past over the House of Delegates. I want to call to your attention the Boston meeting which no doubt will be a big one from the standpoint of scientific medicine, and I trust that the Tennessee profession will be well represented.

E. T. Newell.

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The Secretary presented a communication from certain members as follows:

To the House of Delegates, Tennessee State Medical Association:

We, the undersigned respectfully request that there be an amendment to the By-Laws of the Association as follows:

Chapter I, Section 6. The section of Pediatrics may be formed, which may hold a separate session or join the general session at the annual meeting as may be deemed expedient or wise.

The officers shall be a Chairman and a Secretary of the Section, and they shall be elected by its members—Oliver W. Hill, S. M. Bloomstein, John M. Lee, Morris D. Hartman, H. K. Alexander, R. H. Perry, J. W. Fenn, O. H. Wilson.

Adjourned until 1:30 P. M.

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## SECOND DAY—AFTERNOON SESSION

The meeting was called to order at 1:30 by the Chairman, Dr. Sheddan.

Minutes of the previous meeting were read by the Secretary, Dr. West.

Dr. Sheddan announced that the next thing on the program was the report of the committee on Memoirs. There being no report offered, Dr. West stated he thought it a shame that year after year this committee makes no report.

Dr. Roberts.—I move that each member consider himself as a committee and when a death of a member occurs that he knows of in his town or county that he notify the Secretary of the fact so he can take the matter up as Chairman General of the committee.

Dr. Sheddan.—It os moved that the Secretary be made Chairman of this committee, what is your pleasure?

Dr. Roberts.—I admit it will be putting extra work on Dr. West, but I am sure he will not mind it. If he does not have time to write for the information, he can get some one else to do so, and I know that is the only way he will be able to get it.

Dr. Beasley.—I am secretary of one of the county societies and I think it would be better for the secretary of each county to furnish the information. Then it would not consume so much time, so I would like to add as an amendment to Dr. Roberts motion that the county secretaries be appointed on this committee.

Dr. Sheddan.—You have the amendment to the motion, what do you say?

Dr. Roberts,—I have been secretary of those associations for a number of years, and I know we will never get anything that way.

Dr. Sheddan stated the motion to accept the amendment of Dr. Beasley was before the House.

The amendment and motion adopted.

Report of Committee on Education.—Dr. McIver Woody, Chairman read the report which was adopted.

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## REPORT OF THE COMMITTEE ON MEDICAL EDUCATION

To the House of Delegates, Tennessee State Medical Association.—

In presenting this report it should be explained that it represents the views of the following members only; Dr. Breeding of Sparta, Dr. Burch, of Nashville, and the chairman. The other gentlemen did not attend the meeting this year, or could not be reached at the time this report was prepared.

This committee is a new one, and in its first report, it seemed best to discuss the relations that exist between the profession of the state and the medical schools, and if possible, to point out ways in which the schools can best serve the profession, and through it, the people of the state. It is thought that an annual presentation of this subject to the Association will aid the schools in adjusting themselves to the changing conditions of medical practice.

For conditions of medical practice do change. Within the memory of us all, the telephone has been invented. It has changed our habits of living in many ways. And then came the automobile. Probably no business or profession has been affected by these two inventions more than medicine. Forty years ago Oliver Wendell Holmes compared the country doctor in his buggy for hours at a time to an Indian buried in the sitting posture. Now the doctor goes from patient to patient in his sedan, and all the time he is in touch with his office over the telephone. To be sure, these modern conveniences are more available in the city than in the country, but in both the doctor's life is not as hard as it was, and the radius of his activity has been greatly extended.

This change has reacted on the medical schools in an interesting way. The practitioner, finding that he is seeing more patients than formerly decides it will pay him to take some post-graduate work. The medical student, looking forward to a larger practice than was possible in the past, asks for a more thorough course of instruction, and on graduation is not satisfied until he has a hospital internship besides. And so the medical schools are called upon for more varied and more extensive courses, and they have a hard time financing this on the old sources of income. Fortunately they got help in the way of endowments support from the state, and in endowments from private sources. These sums of money attract attention. People forgot the new burdens that have been assumed by the schools, and focusing their attention on the new funds obtained, began to speak of the schools as setting the pace, and even determining the conditions of medical practice. Your committee believes there is a danger here of confusing cause and effect. It believes that the recent advance in medical requirements is the result of what has already occurred in the profession at large.

The present rigid requirements have been forced on the schools by the operation of two forces; on the one hand, the demand for more and better medical instruction; and on the other hand the survival of a few low-grade medical schools. The latter take advantage of every technicality in interpreting admission requirements, and abuse any liberty allowed them, and as a result, the better schools have been forced to adopt hard and fast rules that can not be evaded. It is to be hoped that the individual states will revoke the charters of fraudulent schools, so that the recognized schools can liberalize their standards, and base their degrees on examinations and other tests, instead of on time and subject credits. But at present liberal rules would only give a new lease of life to the low-grade schools. It would throw upon the State Boards the whole burden of protecting the public from half-trained practitioners, not to mention the osteopaths and the chiropractors. Just such a condition of affairs existed in Massachusetts until a year ago. Under an old law, the State Board had to admit all applicants to its examinations. The examinations were made unusually rigid to rule out the unfit, and yet those who passed it had no reciprocity privileges outside the state.

Reccommendation One—That no radical liberalization of medical requirements be advocated at present.

And yet there is a serious shortage of doctors in the rural counties. Letters come from towns and villages saying that their doctor has moved to the city, and asking if there is not some young graduate who is looking for a good location in the country. Such young doctors are hard to find, because the graduates of good and poor schools alike are crowding into the cities and avoiding the hardships of country practice. May it not be possible that the present generation of country doctors have spoiled the country folks, and taught them to expect more and better medical care than is to be had now?

Few country boys are taking up the study of medicine. The Nashville boy can live at home throughout his entire course, the Knoxville boy can live at home while taking his pre-medical work, and the Memphis boy can take his medical work without leaving home; but the country boy must leave home for six years to get his medical degree. In casting about for some way of equalizing opportunity between the city boy and the country boy, your committee considered scholarships that would give promising boys from the country free tuition while studying medicine. It was thought that if more country boys would study medicine, some of them would be likely to settle in the country among their relatives and friends.

Recommendation Two—That the medical schools in Tennessee be requested to offer one medical scholarship for each county in the state.

McIver Woody, Chairman.
W. J. Breeding.
L. E. Burch.

Committee on Social Insurance.—A verbal report was submitted by Dr. H. B. Everett, Chairman, which showed most careful study of the subject. (The written report will appear in the next Journal.

Dr. Gallagher stated this was a very important matter and that accepting the report each year should not end it, but active interest be taken.

Moved that the present committee be continued, seconded and carried.

Dr. E. C. Ellett, chairman, submitted the report of ehe Conservation of Vision Committee, which was read by Dr. West, accepted and approved. The report follows:

The Committee on Conservation of Vision regrets that the notice of its appointment came too late to allow any definite plan of work to be put into operation. We would suggest that the next Committee be announced within thirty days after the meeting.

We suggest that the wark of the Committee be along the following lines:

1. School Inspection. The Committee should through sub-committees see that the physical examination of all the school children be carried out in each county and that men be provided to examine the eyes as part of this examination, and that suitable suggestions be made to the parents of children whose vision is below normal and who manifest ocular disease.

2. That the teachers in the schools be instructed in the tests for vision and encouraged to make these tests.

3. That instruction in matters pertaining to the the protection of the eyes from industrial accidents and first aid in case of such accidents be given by lectures and demonstrations to industrial workers and their employers whenever and wherever this can be done.

4. That lectures on the Conservation of Vision be given to Civic Clubs, Rotary Clubs and similar organizations in each county at least once during the year.

5. That the services of competent oculists be offered to Boards of Health and other authorities to aid in the management and detection of suspected outbreaks of trachoma.

6. Papers should be presented to general medical societies on the commoner diseases and injuries of the eyes and their management and also in regard to the dangers attending the indescriminate use of certain drugs in the eyes, such as atropine.—W. G. Kennon, L. M. Scott, E. C. Ellett, Committee.

Report of Councilors.—Dr. Miller read the reports of the Second, Fourth and Fifth Districts.

Dr. J. A. Hardin read report of the Third District; the Secretary read the report for the 6th; Dr. Beasley for the 7th, and Dr. Dancy the8th; Dr. Miller also read the report of the 9th District. There was no report from Dr. Black, of Memphis, for the 10th District.

Reports received and approved.

(This report will appear in the next Journal.)

Hospital Committee.—Report presented by Dr. Farmer, Chairman; discussed, received and adopted. (This report will appear in the next Journal.)

The Secretary stated that the amendment to the By-Laws yesterday included the selection of councilors for the next year. These councilors should be elected at this time.

The Chair declared nominations for Councilors in order. Dr. S. R. Miller was nominated for the Second District, Dr. Z. L. Shipley for the Fourth District.

Dr. W. C. Dixon, for the Sixth District.

Dr. M. S. Herron, for the Eighth District.

Dr. J. L. McGhee, for the Tenth District.

Dr. Dulaney moved that the Secretary cast the ballot of the entire membership for the nominees. Motion seconded and carried.

The vote of the House was cast by the Secretary and the above named members were declared elected as Councilors for the Districts indicated.

On motion the meeting adjourned until 8 o'clock Thursday morning.

(To Be Continued.)

## SECTION ON OPTHALMOLOGY AND OTOLARYNGOLOGY OF TENNESSEE STATE MEDICAL ASSOCIATION AT THE 88th ANNUAL MEETING.

Nashville, Tenn., April 12, 1921.

The Section on Opthalmology and Otolaryngology of the Tennessee State Medical Association was called to order at 8:30 p. m., Tuesday, April 12, 1921, at the Tulane Hotel Assembly Hall, the Chairman of the Section, Dr. E. C. Ellett, of Memphis, Tenn., presiding.

Chairman Ellett read to the meeting his address, which was received and filed.

Dr. John Green, Jr., of St. Louis, Mo., by invitation, presented and read to the Section a paper entitled: " Tonometers and Tonometry." The reading of Dr. Green's paper elicited applause, and the following motion was made:

Dr. M. M. Cullom, Nashville, Tenn.—Mr. Chairman, I believe it is not in order to discuss this paper of Dr. Green's, but I feel that I express the sentiments of the Section in voicing our appreciation of Dr. Green's coming here and giving us this splendid paper, and I would like to propose a vote of thanks to Dr. Green for his splendid paper.

The motion of Dr. Cullom was duly seconded and carried viva voce.

Oscar Wilkinson, M. D., of Washington, D. C., by invitation, presented and read to the Section a paper entitled. "The Treatment of Concomitant Squint, with a Plea for Eearly Operative Interference in Children—New Operation," which was received with applause by the Section.

On motion of Dr. Hilliard Wood, duly seconded, the thanks of the Society were tendered to Dr. Wilkinson for his very illuminating paper, and the beautiful demonstration given with it, the vote on said motion being unanimous

Dr. M. M. Cullom, of Nashville, read a paper entitled, "The Indications for Tonsillectomy, and Its Results."

The following gentlemen discussed Dr. Cullom's paper: Dr. O. DuLaney, Dyersburg, Tenn; Dr. J. J. Shea, Memphis; Dr. S. M. Herron, Jackson; Dr. L. A. Yarborough, Covington; Dr. W. Likely Simpson, Memphis; Dr. H. H. Martin, Savannah, Ga; Dr. John Green, Jr., St. Louis, Mo.; Dr. Louis Levy, Memphis; Dr. F. E. Hasty, Nashville, Tenn; Dr. H. E. Christenbery, Knoxville; Dr. W. G. Kennon, Nashville. The discussion was closed by the author of the paper.

Thereupon the Section adjourned until Wednesday morning, April 13, 1921, at 9 o'clock.

## SECOND DAY.

Wednesday, April 13, 1921.

The Section was called to order at the Tulane Assembly Hall at 9 a. m., by the Chairman, Dr. E. C. Ellett, of Memphis.

Dr. S. T. Hubbard, Chattanooga, presented to the Section a specimen with an oral statement describing a case of enucleation with fatty implantation.

Dr. Herschel Ezell, Nashville, moved that it be out of order to extend the time of any speaker, which motion was duly seconded and carried, viva voce.

Thereupon, the regular program for the session was proceeded with.

Dr. S. T. Hubbard, Chattanooga, Tenn., presented and read his paper on "Glaucoma Operations."

Dr. Hubbard's paper was discussed by Drs. E. B. Cayce, Nashville; John Green, Jr., St. Louis, Mo; Dr. E. C. Ellett, Memphis; Dr. G. C. Savage, Nashville; Dr. Herschell Ezell, Nashville; Dr. Hilliard Wood, Nashville; and Dr. S. T. Hubbard, Chattanooga, closing.

Dr. W. W. Potter, Knoxville, presented and read to the Section a paper on "Cataract Operations," which was discussed by Dr. S. T. Hubbard, Chattanooga; Dr. G. C. Savage, Nashville; Dr. W. Likely Simpson, Memphis; Dr. A. C. Lewis, Memphis; Dr. John Green, Jr., St. Louis, Mo., Dr. E. B. Cayce, Nashville; Dr. H. E. Christenbery, Knoxville; Dr. E. C. Ellett, Memphis; and Dr. W. W. Potter, closing discussion.

Hilliard Wood, M. D., F. A. C. S., Nashville, Tenn., presented and read to the Section a paper entitled "Some Common Errors in Diagnosis," which was discussedby Dr. G. C. Savage, Nashville; Dr. Herschel Ezell, Nashville; Dr. L. M. Scott, Jellico; Dr. John Green, Jr., St. Louis, Mo; Dr. James P. Crawford, Nashville; Dr. S. T. Hubbard, Chattanooga; Dr. G. E. Vaughn, Clarksville; Dr. Hilliard Wood, Nashville, closing discussion.

Richmond MsKinney, M. D., F. A. C. S., Memphis, presented and read to the Section a paper entitled, "The Treatment of Catarrhal

Deafness, with Especial Reference to Tinnitus Aurium," which was discussed by Dr. L. M. Scott, Jellico; Dr. M. M. Cullom, Nashville; Dr. Oscar Wilkinson, Washington, D. C.; Dr. C. D. Blassingame, Memphis, Tenn; Dr. Herschell Ezell, Nashville; Dr. O. Dulaney, Dyersburg; Dr. J. P. Crawford, Nashville; Dr. E. C. Ellett, Memphis; Dr. J. J. Shea, Memphis; Dr. Richmond McKinney, Memphis, closing.

Dr. Olin West appeared before the Section, and addressed the members on various matters, and made some announcements relative to the entertainment of the visitors to the city.

Dr. Hilliard Wood also addressed the meeting, tendering for the use of the visiting members and guests of the Association, the use of cars of the resident members for sight-seeing about the city; also announcing the dinner at the Golf and Country Club, to be given at 7 p. m.

Thereupon the Section took a recess, and adjourned to the Hermitage Club, for luncheon with Dr. M. M. Cullom, as host.

## LUNCHEON AT HERMITAGE CLUB.

During the luncheon, the Section was called to order by Chairman Ellett, when the following proceeding were had:

Chairman Ellett called for the report of the Nominating Committee, and received the report of Dr. M. M. Cullom, its Chairman, as follows:

For Chairman of the Section, Dr. E. B. Cayce, Nashville.

For Vice-Chairman, Dr. Willard Steele, Chattanooga.

For Secretary, Dr. J. B. Blue, Memphis.

Further nominations were called for, but none being made, on motion, duly seconded, the Secretary was instructed to cast the ballots of the Section, making the election of the nominees unanimous, whereupon the Secretary formally cast the ballots of the Section as a whole for the nominees, which were duly canvassed, and result announced accordingly.

On motion, duly seconded, the reading of the minutes of the previous meeting was dispensed with.

The officers-elect, the Chairman and Vice-Chairman, arose and tendered to the Section their appreciation of the honor conferred upon them in electing them for the forthcoming year.

The Section as a whole thereupon dispensed with further talk, and proceeded to discuss the viands set forth for their delectation by their worthy and esteemed host.

## AFTERNOON SESSION

The Section was called to order in the Hall of the Hermitage Club, with Dr E. B. Cayce, the newly elected Chairman, presiding.

Dr. Cayce called the meeting to order, and proceeded with the call of the regular program.

Dr. J. McChesney Hogshead, Chattanooga, read to the Section his paper entitled, "Sphenoidal Sinusitis, and Report of Cases," which was discussed by Dr. A. C. Lewis, Memphis; J. J. Shea, Memphis; C. D. Blassingame, Memphis; H. E. Christenbery, Knoxville; and Dr. J. McChesney Hogshead, Chattanooga, closing discussion.

Dr. J. J. Shea, Memphis, presented and read to the Section a paper entitled, " Protein Sensitization in Vasomotor Rhinitis," which was discussed by Drs. H. E. Christenbery, Knoxville; Dr. F. E. Hasty, Nashville; Dr. John W. Moore, Nashville; Dr. Louis Levy, Memphis; Dr. H. H. Martin, Savannah, Ga; and the discussion closed by the author of the paper.

The Chairman announced to the meeting that unfortunately for the Section, on account of having changed the place of meeting for the afternoon section, and the absence of the lantern for proper illustration, Dr. Simpson could not adeqnately present the subject of his paper, "The Heath Operation, and After Care," but that if the consent of the author could be obtained, this paper would be put down for the first thing on the program at the next annual meeting of the Section, in 1922.

Dr. A. Ellis Goodloe, Chattanooga, Tenn., here exhibited and demonstrated before the Section a bronchoscope, which was described in a paper which he read in the meeting.

On motion of Dr. Louis Levy, duly seconded, a rousing vote of thanks was tendered by the Section of the Nashville men for their welcome and hospitality while the Section was in the city.

The Section thereupon adjourned sine die.

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**Devoted to the Interests of the Medical Profession of Tennessee**

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**MAY, 1921**

# EDITORIALS

## LET'S HAVE SOME "PEP"

Things are dragging and dull in many of our county societies and in this Journal Some "pep" needs to be injected in lots of places and its manufacture and injection must be at the hands of the men who make up the societies and who must, therefore, make this Journal.

Some of the local societies are livelier than at any time since the year before the War, but more of them are simply existing and some few are as dead as anything can be and be entitled to a name. And some of them have been practically dead for four years. During the War everybody was busy or gone to the army. Just after the War everything was "disorganized." Now what's the matter?

Answering our own question, we say, Nothing's the matter except for the need of a little "pep." Let somebody wake up and start something and we will soon be back to normal and pushing hard to get ahead again.

## STATE BOARD OF HEALTH

At the regular semi-annual meeting of the Stae Board of Health held at Nashville in April, Dr. W. J. Miller of Johnson City was elected President for the year. Dr. E. M. Sanders was elected Vice-President. Dr. F. M. McRee, for two years a member of the Board will be succeeded on June 1, 1921, by Capt. T. F. Peck, who will become Commissioner of Agriculture on that date. Dr. C. B. A. Turner is the fourth member of the Board.

Dr. W. J. Miller, the newly elected President of the State Board of Health received his M. D. degree in 1877. In that same year he became a member of the Tennessee State Medical Association and was sent as a delegate to the American Medical Association, which met in that year. Drs. G. W. Moody, J. D. Plunkett and D. J. Roberts with Dr. Miller are among the few surviving members of the Association of that date.

Dr. Miller has been identified with public health work in Tennessee for more than twenty years. He was appointed a member of the State Board of Health by Gov. Robt. L. Taylor in 1898 and served for eight years. In 1915 he was again appointed by Gov. Tom C. Rye, and Gov. A. A. Taylor recently renewed his commission.

## REAPPOINTED

Gov. Taylor recently announced the reappointment of Dr. A. B. DeLoach, Memphis, and Dr. B. L. Simmons, Nashville, as members of the State Board of Medical Examiners. Dr. DeLoach has served as Secretary of this Board for a number of years and Dr. Simmons has been one of its members for about an equal time.

Other members of the Board of Medical Examiners are Drs. C. A. Abernathy, Pulaski, Nat. Dulaney, Bristol, W. L. McCreery, Knoxville, and H. W. Qualls, Union City.

## Dr. W. H. TUCKER

Dr. W. H. Tucker, a member and former Vice-President of the Tennessee State Medical Association, died at his home at Halls on March 22, 1921, his death having been due to gastric hemorrhage.

Dr. Tucker was born in Lauderdale County in 1864, graduated in medicine at Vanderbilt University in 1886, and practiced medicine at Double Bridges for thirty-five years. He was very active in the practice of medicine, serving a large territoy. Dr. Tucker was faithful in the performance of all his duties to the public and to the profession. His interest in the advancement of medicine was always great and he was closely identified with its organized soceeties, having served twice as president of his county society and in 1918 as Vice-Presiddent of the Tennessee State Medical Association.—J. W. Sanford Sec'y. Lauderdale County Medical Society.

## MIDDLE TENNESSEE MEDICAL SOCIETY

The semi-annual meeting of the Middle Tennessee Medical Society was held at Springfield on May 12, 13. The attendance was the largest for many years and a good program was carried out. Dr. C. V. Stephenson, of Crutchville, the President, was in the Chair and Dr. Milton Tharp, Secretary, was "right on the job" every minute. An interesting feature of the meeting was an address by Col. Joel B. Foot, of Springfield, on "Faith Cure," in which he well sustained his reputation as a most entertaining speaker. The entertainment provided by the Robertson County Medical Society and by the citizens of Springfield, including a beautiful mid-day dinner served by a larg egroup of most charming ladies, was very delightful.

Dr. Eugene Orr, Nashville, was elected President and Dr. Milton Tharp was again made Secretary. The next meeting will be in November.

The West Tennessee Medical Association met at Paris on the same dates, but the Journal has had no report of the meeting.

# MISCELLANEOUS

## NEW AND NON OFFICIAL REMEDIES

Arsphenamine-Squibb.— A brand of arsphenamine N. N. R. (see New and Nonofficial Remedies 1921, p. 41). Arsphenamine-squibb is marketed in ampules containing, respectively, 0.1 Gm., 0.2 Gm., 0.3 Gm., 0.4 Gm., 0.5., Gm., 0.6., Gm. Arsphenamine. E. R. Squibb & Sons, New York.

Neoarsphenamine-Squibb.— A brand of neoarsphenamine N. N. R. (see New and Nonofficial Remedies 1921, p. 45). Neoarsphenamine-Squibb is marketed in ampules containing, respectively, 0.15 Gm., 0.3 Gm., 0.45 Gm., 0.6 Gm., 0.75 Gm., 0.9 Gm. Neoarsphenamine.

Sodium Arsphenamine-Squibb.— A brand of sodium arsphenamine N. N. R. (see New and Nonofficial Remedies 1921, p. 48). Sodium arsphenamine-Squibb is marketed in ampules containing, respectively, 0.15 Gm., 0.3 Gm., 0.45 Gm., 0.6 Gm., 0.75 Gm., 0.9 Gm. Sodium Arsphenamine. E. R. Squibb & Sons, New Work. (Jour. A. M. A., April 9, p. 1007).

## PROPAGANDA FOR REFORM

Hexamethlenamin and sodium acid phosphate.—Hexamethylenamin acts in acid urine only. Hence, if the urine is not acid, sodium acid phosphate should be given in doses of 1 to 2 gm. midway between the doses of hexamethylenamin. Enough of the sodium acid phosphate should be given to render the urine acid, but not enough to cause diarrhea (Jour. A. M. A., April 9, 1921, p. 1031).

Cod Liver Oil in Rickets.—For many years cod liver oil has been regarded almost as a recent years it has been made reasonably certain that the administration of cod liver oil speeific against rickets in children. During alters the calcium balance in such a manner that calcium will be retained in the bady and that it increases the capacity of rachitic children to take up and hold calcium. Since the beneficial efforts of cod liver oil on rickets may be due to its liberal content of vitamine A, frequently described as the Fat-Soluble food accessory, it is interesting to know that crude unrefined cod liver oil may be 250 times as rich as butter in vitamine A and that samples of refined oil, although not so active as the crude oil, were also far superior to butter in the vitamine potency. The ease with which the Fat-Saluble A Vitamine of cod liver oil is destroyed by reagents and drastic maniput lations make the various "refinements" of cod liver oil products sold as proprietary preparations even more reprehensible than they have seemed in the past (Jour. A. M. A., April 9, 1921, p. 1009).

Benzyl Benzoate,— This drug has been widely accepted, chiefly on the basis of experiments on excised organs as an efficient antispasmodic agent for smooth muscle in various regions. Few observations have been made, however, as to its action on intact organs. Recent investigation has raised serious doubt as to the efficiency of benzyl benzoate as an antispasmodic for the intact uterus, intestines, stomach and bronchi. Large doses injected into dogs intravenously (so that the drug might act on the smooth muscles of these organs) gave almost totally negative results. This investigation suggests that that allowances should be made for impressions, reflex influences, the psychic state and natural recovery before drawing definite conclusions as to the benefician effect of benzyl benzoate, especially in such capricious conditions as hiccup, whooping cough, asthma and dysmenorrhea for which it has been advocated (Jour. A, M. A., April 30, 1921, p. 1252).

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## BOOK REVIEW

THE WASSERMANN TEST, by Charles F. Craig, M. D., M. A., F. A. C. S., Lieutenant-Colonel Medical Corps, U. S. A.; Professor of Bacteriology, Parasitology and Preventive Medicine, and Director of Laboratories, Army Medical School. Second revised edition; 279 pages; illustrated with half-tones, line drawings, tables and color plates. C. V. Mosby & Co. Price, $4.25.

This, the second and revised edition of Dr. Craig's work on the Wassermann reaction, is an excellent handbook which should meet with a very cordial reception and is particularly to be recommended to physicians whose training in the technique of serology and its complex interpretations is still incomplete. The work is based upon the very extensive experience of Dr. Craig and his military associates with the complement-fixation diagnosis of syphilis in all stages and contains much that may be read with profit concerning the public health aspects of the disease.

In the chapter dealing with the Wassermann reaction in the control of treatment, however, occur a few statements which are not believed to be in entire accord with present acceptances as to prognosis; one of these is as follows: "It should be remembered that the Wassermann test has shown that the vast majority of treated syphilitic infections eventually relapse, even though the treatment has been scientific and thorough, so that the prognosis in every case should be very guarded"; it is to be hoped that this gloomy outlook will not be substantiated by future experiences with the reaction.

The final chapter of the book deals with spinal fluid examinations with reference to syphilis and presents much useful information. An excellent biological reference list is appended which adds much to the value of the work to any who desire to refer to original sources. R. C. D.

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KEENE'S SURGERY. Volume VIII. By various surgical authors. Edited by W. W. Keene, M. D., Emeritus Professor of the Principles of Surgery and Clinical Surgery, Jefferson Medical College, Philadelphia. 960 pages with more than 650 illustrations. W. B. Saunders Company, Philadelphia, with Vol. VII and separate Desk Index, Cloth, $25.00.

With Volume VII of Keen's Surgery, which recently preceded it from the press, this the eighth volume completes ths work to date of one of America's greatest surgeons and teachers. The two volumes present the very newest and best lessons learned from the combined experiences of a rather large group of the world's best surgeons, more especially the lessons of the recent world war. An extended review of this work is altogether unnecessary because the profession of Tennessee and of this nation know full well that what bears the name of W. W. Keene is all that it should be.

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A PRIMER FOR DIABETIC PATIENTS. By Russell M. Wilder, M. D., May A. Foley and Daisy Ellithorpe, Dietitians, The Mayo Clinic. W. B. Saunders Company, Philadelphia. Cloth $1.50.

This little book is for the instruction of the diabetic patient and fully meets its declared purpose. The patient is told what he should know about diabetes and its management in order that he may intelligently cooperate in the efforts made by the physician in his behalf. A splendid list of diet menus and recipes is given.

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VOLUME XIV NASHVILLE, TENN., JUNE, 1921 NUMBER 2

## THE PRESENT STATUS OF THE PRACTICE OF MEDICINE AND OF MEDICAL EDUCATION

By L. L. Sheddan, M. D., Knoxville.*

Ungrateful indeed would I be did I not express to you my very great appreciation of the honor conferred upon me by electing me to the highest office within the gift of the profession of the State. To say that I am proud to know that I have been deemed worthy of occupying the seat which has been held by so many distinguished predecessors but feebly expresses my feelings. This honor has been shown me, I know, not for anything I have ever accomplished in any professional or scientific way, but rather as a reward for my love and devotion to my profession, for my loyal support to this Association and for my great enthusiasm in the cause of organized medicine in general.

Every one who knows me knows that there is not a more enthusiastic medical society lover in the State that I am. For sixteen years I was a member of the Middle Tennessee Medical Society and only missed two of its thirty-two meetings; for the past twelve years I have been a member of the East Tennessee Medical Society and have not failed to attend a single one of its twenty-four meetings; and I have been an almost constant attendant upon the meetings of this Association for twenty-eight years. My long membership, and constant attendance upon the meetings of these different societies has enabled me to know personally, and intimately, more members of the profession in Tennessee than any other member of this Society save our honored and beloved secretary.

Every man who is worth while is animated by certain desires and ambitions. My greatest desire has been to be a man, to be able to stand flatfooted and look every other man straight in the face, and have the consciousness of knowing I have always been "square" and accorded every man his dues; to live so that I would do no violence to my self respect; to have the confidence of my patients; but above all it has been, and is, my most earnest desire and my greatest ambition to have the confidence and respect of my confreres and co-workers in my profession. By your action in electing me to the presidency of this association you have shown that I have, in a measure, attained my greatest desire and filled to the fullest extent the cup of my ambitions, and I want to again say that I am most profoundly grateful and again I thank you.

Every one who has had the experience knows that the one disagreeable feature attending the honor of being president of this association is the knowledge of the fact that he must inflict upon the members a presidential address. Now, gentlemen, I fully appreciate your feelings and sympathize with you in your anticipated martyrdom. Those of you who are here to listen to this address are heroes or you would have not thus subjected yourselves to this most trying ordeal. I have myself, many times in the past, sat with Spartan stoicism and listened to the belabored efforts of some would be orator as he delivered himself of a lot of "bunk" and superheated atmosphere, and have, often times, wondered why I did it, but have never yet come to any definite conclusion.

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*President's address presented at the Eighty-eighth Annual Meeting of the Tennessee State Medical Association at Nashville, April, 1921.

You may come here gentlemen expecting to hear a wonderful display of oratory, or a brilliant and logical discourse, and clear elucidation upon some obscure pathological problem. Or you may have anticipated that I might quote you some hitherto unquoted tables of statistics which, as you know, are always delightfully entertaining. If such be the case I assure you that you are laboring under a most pronounced hallucination. And I will say further that it is the opinion of one, who should know, that you are doomed to bitter disappointment and he would strongly urge and advise that you, like the Arab, fold your tents and noiselessly, and silently sneak out before he really gets started. However as you have made up your mind to take your medicine, I will try and not prolong the agony, but will as, briefly as possible, sing my swan song and gracefully retire.

To select a subject for an address for this occasion I will assure you was, for me, no easy matter. To try to tell you of the glories and accomplishments of the physician and surgeon in both peace and war would be presumption upon my part, for these have been written in song and story in language far more beautiful than I have at my command. Neither did I feel that I should come with any long list of recommendations for measures to be proposed to our friends upon the hill, the legislature; and I am entirely too young to try to give you any further advice as to your conduct regarding the code of ethics. Finally I decided to say something about the present status of the practice of medicine and of medical education, that we might see if we are really progressing along a well balanced line or whether or not we are, in some respects, rather retrogressing and, in a measure, losing sight of some of the more practical things. I also want to say something of the forces which are operating to cause so many of the younger men, our recent graduates, to locate in the cities with a desire to take up surgery, and why so few are locating in the smaller towns and rural districts and failing to take up the general practice, or internal medicine.

There has been a great deal of speculation and controversy going on, in all sections of the country, upon this subject and no one seems able to convince any one else that they know anything more about it than any one else. There seems to be a feeling, by some, that we are rapidly approaching a medical autocracy, while others are equally sure that we are fast drifting into medical socialism. There are those who are optimistic and who believe that medical colleges and medical education are fast reaching the utopian stage of perfection; and that, by a still more rigid requirement being placed upon those who would study medicine, and more rigid laws regulating the practice of the profession, that the ideal would soon be attained.

Others are more pessimistic and dissatisfied, and are verging onto medical bolshevism. These would again revert to the old method of pulling off the bridle and letting it again be a struggle for a survival of the fittest.

It is contended by some that very few young men are desirous of taking up the study of medicine and these see the time rapidly approaching when there is going to be a dearth of physicians, and that much sickness, suffering and death are going to result from the scarcity of doctors.

Others contend that there is yet a surplus of medical men and that greater restrictions should still be placed upon the study of medicine and a greater concentration of medical colleges and a greater limitation of classes. It appears that this is the attitude taken by some of the medical colleges, as a great many of them are turning away applicants for entrance every year. It is reported that one school alone turned away more than one thousand applicants to the freshman class this year. I have reports from other medical colleges that they are also turning men away. So it does seem that there is something wrong some where. There must be either a conspiracy to limit production, or else, a great lack of facilities for teaching. I am constrained to believe that it is the limitation of facilities rather than any systematic effort to limit the output.

Now what does all of this mean and whether does it trend? Realizing that my opinions upon these subjects might be very far from correct, I decided to see how far at variance my views were from the opinions of some of the best minds in the profession over the country, so I sent a list of questions to a few of the most prominent members of the profession throughout the United States, both surgeons and internists, asking their opinions upon some of the phases of the subject. I received replies from quite a number of them and I find that they are very much divided upon some of the points I wish to discuss.

Now I am one of the optimists who most sincerely believe that the science of medicine and surgery is a progressive science, and that never in the history of the world has the same amount of progress been made in any other line of human endeavor, and in the same length of time, that has been made in this science. The progress has been so rapid, and the pace so swift, that we almost become bewildered by the rapidity of its movements. The physician or surgeon who stops to rest or falters by the wayside is soon distanced in the race, and will, ere long, be numbered with those who have been. It is only by dint of hard work and constant application and attendance upon occasions such as this that he can hope to, in any measure, keep pace with the procession.

I am sure that every man here will concede the desirability of a thorough preliminary education, as well as a thorough medical training. Theoretically, it would be an ideal arrangement if every man who desires to enter the profession could have a complete college education to start with, and then for him to remain in medical college and hospital work a sufficient length of time for him to become perfectly familiar with diseases in all of their manifestations, and with the most approved methods of treating them. Theoretically, I say, this would be an ideal medical educational arrangement, but are we just ready for such an ideal? Are the sciences of medicine and surgery so exact that it is possible to give the student a complete medical education? So complete that he will not soon be rudely awakened to the fact that many of the things which he learned during his long years of medical apprenticeship must be unlearned? That theories which were given to him as facts have been exploded, and new theories must be learned? We all realize that there are few proven facts connected with the science of medicine. Many of the things we have looked upon in the past as facts have been proven fallacious, and many of the things we now look upon as proven may soon be disproven.

Facts are stable and never change. On the other hand, theories are notoriously evanescent and unstable They may be as numerous as there are individual workers, every man may have a theory of his own, and each may change his theory as often as proofs and circumstances arise to justify the change. Thus we see that it impossible to give any man a complete medical education.

It is certainly desirable to give the medical student the best we can, to teach him all of the known facts and how to discriminate between a theory and fact; to teach him how to learn, how to investigate and to observe; it is wise to give him bedside instruction, to teach him the benefits of a close personal contact with disease in order to observe its clinical manifestations and the results of treatment applied.

One of the things to be desired in the making of a doctor and which is most essential to a medical education, is to have the proper kind of material to teach. No amount of teaching can take the place of energy and ability to learn. The study of medicine is no place for a drone, a laggard or a weakling. No medical college can compensate for these, neither can money cover them up. We need the very best minds we can get to enter the profession, but, under the present regime of medical education, many of the best minds are deterred from undertaking the task. The same amount of time, energy and money, spent along almost any other lines, gives promise of greater financial returns. Then again, many cannot possibly afford the financial outlay necessary to secure the required education.

It seems that when other kinds of educational institutions receive large endowments, these endowments are made for the purpose of helping to facilitate the cause of education; to make it easier for students to get an education and to give the opportunity to a greater number of those who desire an education. However, we have observed that the larger the endowment received by a medical college, the more expensive the education becomes, and the greater the limitation of the classes. Now if these endowments are made solely for the benefit of those who are operating the medical colleges, and for the purpose of making it still harder and more expensive for a young man to get an education, then I say, God grant that we get no more endowments for medical colleges! I cannot believe that such has been the intention of those great philanthropists who have been so liberal with their donations to the cause of medical education. If these endowments have been made for the purpose of increasing the facilities for securing a medical education, it seems that they have fallen short of their objects, and it is to be hoped that some change may be made to relieve the situation.

Now I do not want anyone to think for one moment that I am advocating a low standard in the profession—far be it from me. Neither do I wish to offer any caustic criticism of those who have been instrumental in bringing about the great advances for the purpose of elevating the standard of the profession. But, gentlemen, may we not go too far and become entirely too idealistic in our methods? Is there is not such a thing as a danger of our over-educating our medical students at the present time? Are we not becoming so utterly scientific that we are, to a certain degree, losing sight of the more practical side of the profession? And, in our enthusiasm and efforts to elevate the standard, is there not danger of making time and money the standard, in place of energy and brains?

Is it possible to so educate a medical student that he may be competent to go out and practice any and all of the specialties? I am constrained to think the student is required to put in entirely too much time upon the branches of medicine which are known as special branches. These subjects should undoubtedly be stressed sufficiently to enable him to grasp their importance, and to recognize conditions which should be treated by the specialist, but it is requiring entirely too much of him to make him put in long hours upon such things as ophthalmology, otology and laryngology, and to require him to acquire a laboratory training which will enable him to become an expert bacteriologist, pathologist, hematologist—things which take a lifetime for a man to become proficient in, and which no man, actively engaged in practice, has the time to devote to, and if he had, he would not be willing to depend upon his own findings. I believe that it is pretty well conceded that an opinion upon any laboratory finding is worth very little unless given by one who is perfectly familiar with laboratory technique and methods. It is of course necessary for a medical student to be taught enough for him to realize the importance of laboratory findings, as much valuable information is thus obtained, and in some cases, absolutely essential for a correct diagnosis. However, without special training to enable the laboratory technician to become an expert, his opinion would be of doubtful value. Subjects, then, which may be considered to come within the field of the specialties should be left for post-graduate work. We mean by this that the student should have enough training in these things to enable him to recognize their importance and to interpret laboratory findings when given him, but that he should not be required to put in sufficient time to qualify him for a specialist along all lines when he leaves college.

What is meant by a standard of medical education and how best can it be attained? If the same methods and system could be applied to the manufacture of doctors that is carried out in the manufacture of Ford automobiles we might succeed in making doctors by a routine process. If all material used was scrutinized and standardized before starting and nothing used that was not best suited for the purpose, then all material could be put through the same routine process and, when completed, all would be alike, could bear the same stamp, be called by the same name and be expected to perform the same service. In the manufacture of the automobile the materials are all selected and nothing used that is not best suited for the purposes for which it is intended, a careful discrimination is made, and, as the process of manufacture progresses, all defective parts are discarded. After completion they have a regular routine method for testing them out to ascertain whether they can be expected to meet the requirements which will be placed upon them by the ultimate purchaser and user. In the manufacture of doctors this method might work admirably if we could only eliminate the human element, if there was the same careful scrutiny and selection of material used and if, as the process of education advanced, defective unsuited material were discarded, a standard might be reached at a given time and all might be expected to perform the same service.

Such methods however are not adapted to the selection of medical students. The brilliant, high class, energetic student who has a correct conception of what he is going to learn, who can readily grasp the scope of his subject and is enthusiastic over his work is forced to take the same routine course the college prescribes—hour for hour—that is required of the man who is dull of intellect, indolent and inefficient, who has no conception of what he is supposed to be studying, who cuts classes and whose only ambition is to be able to make a passing grade. There is no incentive for him to work any harder than he thinks necessary, and he, like the common laborer, is satisfied to put in his eight hours and call time. He knows that the chances are that he can, in the time prescribed, reach the standard set. When the course is finished he gets the same recognition and the same credentials, is branded with the same mark and goes out the supposed equal of the other, and why not? He has had the same course, and put in the same time in college.

Now is this just? Is this the best way to elevate the standard of efficiency or to judge of the qualifications of the medical student? Would it not be better, more logical, and more just to establish a standard, no matter how high, and when the student can come up to the standard set to put the stamp of approval upon him? Let him be tested out by all methods to be assured that he is competent to meet the requirements in a creditable manner; in fact, let him be proven and then let the college put upon him the stamp of approval and certify him for graduation, no matter whether it be two, four, six or ten years, and do not put the stamp of approval upon him until he can come up to the standard and meet the requirements. If at any time during his college courses it becomes apparent that he is not suitable material, let him be told that he is unsuited for the position to which he aspires and eliminate him from the race. Let them not keep him on the full four years, and turn him out with their stamp of approval upon him, a defective piece of machinery which he will always remain. Let energy and brains be the standard and not any specified time nor a specific sum of money. If such a standard were set, and the student given the assurance that when he was able to measure up to the standard he would be granted his credentials, then indeed would energy and competence be made the standard.

There is entirely too much difference in, and too many grades of human intellect, too much difference in the early training of the mind, too much difference in the dynamic force of individual students, for it ever to be practicable, or desirable, to erect a standard by which they are to be measured other than efficiency. One man may grasp things very readily while others may work a lifetimes and never be able to comprehend their great significance. Then why do the medical student the injustice of forcing him to spend a specific time upon any given subject? Let his knowledge of the subject be the standard, and not the time he has spent upon its investigation. If it were possible to give a man a completed medical education in any specified time in college and hospital, regardless of his capacity for learning or his adaptability to the work, it would be a most happy state of affairs and the present methods would be all that could be asked. This, gentlemen, no matter how long you may make the course, can never be done.

I said in the beginning that I was one who was thoroughly convinced that the sciences of medicine and surgery are, progressive, and that great strides had been made in their advancement. I reiterate that statement, but I am not quite so enthusiastic over the practice of medicine. Has the practice been keeping pace with the science? Are the modern methods of teaching in our most advanced and highly endowed medical colleges with their all time teachers, who are highly trained technicians and ultra-scientific men, calculated to turn out men who will make better practitioners and clinicians than was done by some of the older methods? Will men of large clinical experience in private practice who have gained much of their knowledge of medicine at the bedside and in private homes—the men who have brought the practice of medicine up to where it is today—be willing to abandon a lifetime work to engage as all time teachers in medicine, surgery or obstetrics? Or do we want such men as teachers? Or rather do we want men whose training has been gained exclusively in hospital work and by laboratory investigation?

Gentlemen are we not rushing along so fast, and reaching out so far after the ideal and ultra-scientific that we are, in a measure, overlooking the more practical? Are we not too much inclined to "pass the buck" to the laboratory men? Do we not depend too entirely upon the bacteriologist, pathologist, neurologist, opthalmologist, odontologist, and radiologist for our diagnosis and are we not failing to give our patients that careful personal observation to enable us to interpret the most potent factors, the clinical symptoms, in arriving at our diagnosis?

We will now briefly discuss some of the reasons for many of the younger men and recent graduates locating in the cities with a desire to take up surgery, and why so few are locating in the smaller towns and rural districts. There must be some logical cause for this. It is not because they are lazy or afraid to work; neither do I believe that it is for financial reasons, from the fact that a young man, just entering the profession, has a much better chance to make money in the country or smaller towns than he has in the cities. There he does not have to encounter the same amount of competition and living expenses are very much less, so we must look further than these things for the cause. There are more potent reasons than these and I, for one, do not believe that the young men are less willing to work than we were at the same stage of the game, and I am not going to cast any reflections upon them along these lines. One of the reasons for it, as I see it, is that in most of the medical colleges surgery and the specialties are stressed at the expense of general medicine. Again, the young man feels that after he has run the gauntlet of getting a medical education under the present regime he can not afford to isolate himself by locating in the smaller places. He feels, and probably justly so, that his training has been far superior to the older men, who did not have all of his advantages, that because of his superior attainments he will soon outdistance his competitors.

One of the reasons for the lack of interest taken in internal medicine by the younger men, is to be found in the tendency shown by so many of our teachers and leaders in medicine towards therapeutic nihilism. The student is taught the importance of laboratory tests and skiagraphic findings and the value of elaborate and ultra-scientific investigations for the purpose of making a correct diagnosis. No fault can be found with either of these procedures; they are wise and commendable, as without a diagnosis treatment is very unsatisfactory and unscientific. However, after these elaborate diagnoses are made, if the case proves to be one not of surgical nature, the treatment is not sufficiently dwelt upon. Not enough emphasis is given to the therapeutic applications of remedies for the alleviation of diseases. The drugs, many of them, which we were taught during our brief college days were potent remedies are now relegated to the limbo of an almost forgotten past and the young men are imbued with a feeling of therapeutic skepticism. They compare the effect of therapeutic remedies in the treatment of disease with the brilliant results seen following a skillful operation for some desperate intra-abdominal pathology, and they feel that the whole field of medicine may be summed up in two words, viz., diagnosis and surgery, hence they naturally turn to that which they feel offers the best field for service.

We are all well aware of the fact that there are very few specifics in medicine, still this does not justify a feeling of therapeutic nihilism. We also know that surgery is not a specific, that it often fails to accomplish all that is hoped for and some of us, at least, have actually seen morbidity increased. If more stress was laid upon the scientific and rational use of therapeutic measures, and more enthusiasm put into it by those who are responsible, and less skepticism shown, the medical student would be much more favorably impressed with the importance of internal medicine.

Again, as Dr. Deaver says in his answer to my questions, "surgery is a more exact science and the student can see the results and 'seeing is believing'." Again when the student enters a hospital for further training, especially is this true in most of the hospitals, the major part of his work is along surgical lines. It is so spectacular and thrilling that he is naturally more interested in that side of the work than he is in internal medicine. Again, after he has been out in private work for a while and desires to visit the clinics of the great medical centers, the same conditions confront him. Most wonderful surgical clinics are open to him, where he can see surgery in all its perfection by the greatest surgeons of the world. Not so with medical clinics.

While no one has a greater appreciation for the work that is being done in our great surgical clinics and for the advantages enjoyed by the profession, through the courtesy and kindness of the great masters in surgery who operate in them than I have, yet I believe that they do, in a way, exert a baneful influence over some who are permitted to witness the work. So many men, after spending a week or two in one of these wonderful clinics, become so enthused over the work and the wonderful results obtained that they can not resist the temptation to plunge into surgery, and we all know the results of such work Such pseudo surgeons are fast bringing reproach upon surgery in general. There are instances of this kind in every town in the country. We all know a number of men who have, after spending a couple of weeks witnessing the operations in these places, returned to bloom out as full-fledged surgeons. If they could have the same opportunities of witnessing the work of the great masters in general medicine, with the same clinical material, as they analyze their cases, and could have the inspiration of these clinicians they would go away with the same enthusiasm over the general practice that they now do over surgery.

I am happy to say that after receiving some of the answers to my questionnaires sent out I find that there seems to be a feeling that the tide has turned in favor of the internist and that many more men are now turning their attention to general medicine. This aspiration to do surgery is the main cause for a great many of the young men going to the cities. There they can have the benefits of hospital accommodations and there is where the surgical cases drift, so they feel that they must be where they can command these advantages.

This is one of the evils of the open hospital. They open their doors to any and all who aspire to surgery, no matter how incompetent nor how little their experience. As a result of this condition, every man who feels so inclined, or who is so money-grasping that he does not want anything to get out of his hands that offers a fee, can do his own operating. As a consequence there is a great deal of very unwise and bunglesome surgery done. Many cases are operated upon by men of this kind which would never be touched by the experienced surgeon. I am constrained to believe that a much more careful discrimination should be made and that only men who have demonstrated their ability and are of undoubted honesty and integrity, and who command the confidence and respect of their fellow practitioners, should be permitted to operate in our general hospitals. I know of no way to curtail the activities of those who operate in private hospitals.

This desire to do surgery, coupled with the desire to escape the dreary isolation which they feel in the country, where there are no laboratories, no one with whom they can counsel, and with no facilities for doing their work in the way they have been trained, and the feeling that the time and money spent in getting their education entitles them to something better, causes men to make their decision for the city.

Now what is going to be the outcome of this movement to concentrate medical colleges, to the limitation of classes and the denial of entrance to young men who desire to take up the study of medicine? And this tendency of so many young men to concentrate in the cities, leaving a dearth of physicians in the rural districts and smaller towns? As a result of this movement the cities are becoming crowded with physicians and the more sparsely settled communities are feeling the need of more. This state of affairs is bringing about a feeling of unrest, that something is wrong. A feeling is gaining ground against the profession and a feeling of general discontent is being manifested.

State control, health insurance and medical socialization are being agitated in many sections of the country. Governments, municipal, state and national are being importuned to do something to relieve the situation. This is not being agitated in our state, but there is danger of it turning in this direction. I will not take up your time in discussing health insurance and state control of the profession. However, those of you who are keeping in touch with the movement being made in some of the Northern and Eastern States, especially New York, Ohio and Illinois, know that this question is a live one and demanding the very closest attention of some of the best minds of the profession.

We all know that to standardize and socialize the profession would be a death blow to scientific medicine. Not only would the profession suffer, but the public as well. However, if the profession continues to be too autocratic and medical education made impossible to the great masses of young men, centralization in and around a few medical colleges with large endowments which, as their endowments are increasing the more expensive it becomes and the greater the limitation of their classes, no matter how desirable it may be from a purely medical and scientific standpoint, it is most surely going to result in medical rebellion and socialism and the cause of scientific medicine will be set back a hundred years in its progress

It is well enough for us to have high ideals and utopian aspirations, and for us to strive for better things, but are we just ready for utopia? Does it not behoove us to call a halt and for a while look to a more practical course?

There are a few men in the profession who, like a great many of the outside, are political agitators, idealists and dreamers; who believe in governmental paternalism and who would have the government take control of all activities which concern the public; who would subsidize the profession and force physicians to treat all laborers, slackers and incompetents for a mere pittance. Then, again, the crowded condition of the profession in the cities is causing another element in the profession to clamor for such an arrangement in the hope of securing a salaried position. The scarcity of physicians in the more sparsely settled communities is causing them to clamor for help.

When state control and socialization of the profession comes about, politics will dominate the situation, incompetents will be placed in control, men will cease to strive for greater professional efficiency, and will devote their time and energies to political chicanery. Individual effort will cease and scientific medicine will be a thing of the past.

No matter how desirable a medical autocracy may appear, it is dangerous and impractical and it will, as surely as day follows the night, be followed by medical rebellion and socialism. Already legislatures, in some states, are legalizing all kinds of fakes, quackery and isms, and when we raise our protest we are told that we are endeavoring to create a medical autocracy. There is a clamor fon health centers and for laws regarding the pregnant and parturient and many other things along this line. Many of these things are idealistic to the casual observer, and might prove a benefit to a large class of people could such measures be divorced from political control and the system be left in the hands of the profession to control and manage, but we all know that this can not be done.

When medical affairs are placed under beaucratic control, individual efforts will be throttled, medical men will cease to strive for efficiency, the science of medicine will deteriorate, and the welfare of the people will be placed in jeopardy.

This address was practically finished before receiving all the answers to my questions sent out. I wanted to see how far my views differed from the most representative men in the profession. After receiving the answers I saw no cause to change my views, as some were of my opinion upon some things, and some differed very widely from me. Some agreed with me in some of my contentions, and differed with me in others. I think it will be of interest to read you what they have to say, so if you will pardon me I will rapidly go over the answers of these men. I also wish to express my very great appreciation for the kindness of those who so promptly replied.

The questions sent out and answers received were as follows:

Question 1.—Why are there so many recent graduates in medicine locating in the cities with an aspiration to do surgery, and so few taking up internal medicine ?

Dr. R. C. Cabbot, of Boston, answers:

"More money, more stimuli of all kinds."

Dr. Geo. W. Norris, of Philadelphia, answers:

"The flux of recent graduates to the cities is a part of a general condition wide-spread throughout the country. City life offers many inducements and among these hospital facilities weigh heavily with the doctor."

Dr. Geo. W. Crile, answers:

"I do not know."

Dr. Harlow Brooks, of New York, answers:

"I believe because of quicker and more definite results, and because of the attitude of the public in being more willing to remunerate surgeons than medical men."

Dr. John B. Elliott, of New Orleans, answers:

"Because surgery appeals more to young men on account of its rapid and startling results. It requires less work, or at least it seems to do so, and is more paying."

Dr. W. J. Mayo answers:

"The expense, in time and money involved, in medical education under present conditions make practice in small towns undesirable. On account of lack of equipment the doctor is unable to do the things he is trained to do. Recently, however, there has been a great change in the attitude of young men toward internal medicine. In the Graduate School of the Mayo Foundation under the University of Minnesota, for instance, a large number of the brightest young men are taking internal medicine."

Dr. J. S. McLester, of Birmingham, answers:

"Because surgery is more spectacular and brings greater rewards and, usually, promises earlier success and because, unfortunately, the work in general practice is more difficult and the rewards relatively small."

Dr. John B. Deaver answers:

"1st. Because of the greater facilities and clinical societies. 2nd. Surgery is a more exact science. 'Seeing is believing'."

Dr. C. F. Hoover, of Cleveland, answers:

"I think this can be answered very simply. Men settle in the city and have surgical aspirations for the same reason that they locate in the city, and they locate in the cities for the same reason which gives them surgical aspirations, to earn more money and acquire it more readily, and to escape the hardships of general practice which are incident both to country life and city life."

Question 2.—Do you not believe that, in most of our medical colleges, surgery is stressed at the expense of general medicine?

Dr. Cabbot says, "I doubt it."

Dr. Geo. W. Norris says, "Yes, I do believe that surgery is unduly stressed. I believe that most of the surgical teachings should be done as post-graduate work for those who expect to take up surgery as a specialty."

Dr. C. W. Crile says, "Not especially as far as I know, but perhaps there is a tendency in that direction."

Dr. Harlow Brooks says, "I do not feel that this is the case now in New York. I feel, that here, we internists are getting rather the better class of men and more of them."

Dr. John B. Elliott says, "NO."

Dr. W. J. Mayo says, "Medicine has been in a state of flux and is now rather definitely passing from the stage of pills and powders into a conception of natural therapy based on physics."

Dr. J. S. McLester says, "I do not think that the surgical side is stressed at the expense of the medical side."

Dr. J. B. Deaver says, "No. At least in the University instruction in one is as important as the other."

Dr. C. F. Hoover says, "Surgery is not stressed at the expense of internal medicine. Internal medicine is probably not sufficiently stressed. If students, in their medical course, fail to gain any inspiration from internal medicine, then I should say the fault lies with the teachers and not with the subject. I believe you will find this point of view varies greatly in different schools."

Question 3.—Do you believe that the practice is keeping pace with the science of medicine?

Dr. Cabot says, "No, it takes more character than the science does."

Dr. George W. Norris says, "Practice is probably not keeping pace with the science of medicine. Especially if the country at large is considered. I suppose it never has kept up in the past. The main remedy lies in postgraduate work, such as is offered in the graduate school of University of Pennsylvania."

Dr. Crile says, "Not fully."

Dr. Harlow Brooks says, "No I do not regret it very much. Too much pseudo science, too many guinea pigs, and not enough patients; too little attention to the clinical."

Dr. John B. Elliott says, "NO."

Dr. W. J. Mayo says, "Treatment has always been in advance of knowledge based largely upon empiricism. Today knowledge is gaining ground on treatment and we can look to the time when treatment will be based on knowledge."

Dr. James McLester says, "I am afraid that practice always lags a little behind the science of medicine. I do not think this could well be otherwise, since the science should be well proven before it is brought into practice. Still the lag behind it is often greater than it should be."

Dr. J. B. Deaver says, "Not altogether."

Dr. C. F. Hoover says, "If you mean by this question, Has the best practice of medicine sufficiently employed the best results of scientific endeavor? I will say, Yes. In fact all the inspiration that scientific research men have received has come from practitioners-clinicians who have met with clinical symptoms for which there is no adequate physiological, pathological or bacteriological explanation. The real inspiration has not come from the laboratory to the practitioner, but it has been the other way, from practitioner to laboratory. I do not believe the laboratories have produced any results which are not adequately employed in practice."

Question 4. Do you believe that we are devoting too much time to the strictly scientific side and not enough to the practical, and depending too much upon laboratory findings and not enough upon clinical symptoms in arriving at our diagnosos?

Dr. R. C. Cabot says: "No, to the first. But the personal, moral, and psychological side is neglected."

Dr. G. W. Norris says: "I do not believe that we are devoting too much time to the scientific side. If the graduates of today are to follow the teachers of tomorrow, they must have an intelligent conception and ground work in such matters."

Dr. G. W. Crile says: "Perhaps there should be little change in the scientific side, but improvement in the practical side."

Dr. Harlow Brooks says: "Too much stress on laboratory findings in diagnosis, not enough real clinical research. Too little study of the patient, too little human physiology."

Dr. John B. Elliott says, "We are not developing the scientific side too much, but we are teaching the men to depend too much upon laboratory, especially the x-ray at the expense of old-fashioned bed-side study."

Dr. W. J. Mayo says: "We are not devoting too much time to the scientific side, but entirely too little to the clinical and to those means which will enable them to take advantage of the scientfic. Clinical medicine must come first—the laboratories are aids."

Dr. J. S. McLester says: "My answer would be 'No'. There are men who rely too much upon clinical symptoms to the exclusion of laboratory findings, and there are men who become absorbed in laboratory findings and seem to lose all clinical sense. Above all we must realize that nothing can ever take the place of clinical observation."

Dr. John B. Deaver says: "Emphatically yes."

Dr. C. F. Hoover says: "We are not devoting too much time to purely scientific subjects, and I believe that in the better schools the teaching of medicine has become intensely practical. Laboratory findings are, of course, of very great value, but if laboratory reports serve to befuddle the brain of a clinician in making a diagnosis, or if he is unable to use his head in the face of laboratory findings, then I should say that man should disavow any pretense of being a diagnostician."

Question 5. Do you believe that there is a tendency to over-educate the medical student at the present time, and a danger of making time and money the standard in place of energy and brains?

Dr. R. C. Cabot says: "Yes," but he substitutes the words "character and service" for "energy and brains."

Dr. Geo. W. Norris says: "I do not believe the medical student is being over-educated except, perhaps, in the specialties. I believe that all of the special knowledge of, for example, ophthalmology, which the general practitioner needs know could be covered in very few lectures."

Dr. George W. Crile says: "Emphatically yes."

Dr. Harlow Brooks says: "I believe that our present system of teaching raises the general standard of the class, but it dwarfs the brilliant individual student. Energy and brains bring their full value with us, money is of little rating in New York schools."

Dr. John B. Elliott says: "No."

Dr. W. J. Mayo says: "The medical student is coming into practice at too late a period of life. The constant tendency of general education has been to raise standards for all alike without regard to what the individual may do in the future."

Dr. James S. McLester says: "No, as regards to over-educating the student, and yes to the question of money and time being made the standard in place of energy and brains."

Dr. C. F. Hoover says: "I perceive in this question a failure to appreciate the real difficulty. The great difficulty in medical schools is to refuse to pass men simply because they have given a very great deal of time to the study of their profession. Unless very strict criticism over the work of the student is exercised, then I should agree with you that time and money may supplant energy and brains, but so long as our teachers are energetic and conscientious, we will not be menaced with any such danger."

Question 6. What effect do you think the present system of medical education, with its rigid requirements and limitation of classes, is having toward causing the general feeling of medical unrest with its agaitation in favor of state medicine, health insurance and general socialization?

Dr. R. C. Cabot says: "No connection."

Dr. G. W. Norris says: "The present system of medical education undoubtedly does tend to favor the things set forth in your question. But I do not see how it is to be avoided. It would certainly not do to turn out poorly educated men."

Dr . Geo. W. Crile says, "Believe other causes are operative."

Dr. Harlow Brooks says: "I am strongly opposed to these tendencies, but I believe the bad influences in this direction have originated outside the medical profession, largely in labor organizations and with professional uplifters. I believe that the feeling here is strongly against these tendencies in the medical schools themselves, but the impulse originates in various so-called charitable organizations, any one of which is far better able to judge as to medical science and its applications than the medical man himself, in their opinion."

Dr. John B. Elliott says: "I do not think the system is causing any medical unrest, but I do think that the people are being educated to demand good doctors, and are not satisfied with poor general practitioners."

Dr. W. J. Mayo says: "I do not think that medical education is responsible for the unrest in the medical profession, but this unrest is one of the evidences of the great change which is coming over medical practice. The movement may be summed up as one for cooperative medicine, community health centers, and hospitals, all to be in the hands of the medical profession and not for politicians."

"In the closing paragraphs of my presidential address which I gave before the American College of Surgeons in Montreal last October, **Mortality and End Results in Surgery,** published in the February number of Surgery, Gynecology and Obstetrics, I touched upon this subject.

"Your question is a most timely one, and on a subject of vital importance to the medical profession. I hope you will send me a copy of your address."

Dr. John B. Deaver says: "Cannot say."

Dr. James S. McLester says, "My inclination is to say that the general world-wide tendency towards socialism is the source of the agitation which you mention, rather than rigid requirements."

Dr. C. F. Hoover says: "It seems quite possible that the lessening of the output of the medical schools will fail to supply incompetent men for poor districts. I cannot look on this as a calamity, for I think a poor district with a poor medical man has simply added to its poverty. If state medicine will give them a good medical man, by all means let us have state medicine.

"If state medicine will give them poorer medical service than they now have, then by all means have them go without a doctor, for I think a poor doctor is a great detriment to any community in which he locates."

If I am in error in my conclusions that there is something wrong in the present system of medical education, and there are more potent factors operating, then I hope these factors may be discovered and the evil removed.

Ideals are well enough to contemplate, but there is always a danger of our ideals becoming too high to be practical.

If medical colleges are requiring too much of the student, the requirements should be modified to meet the needs. If it is impossible for them to accomodate the students desiring to enter, let the facilities be increased. If their curriculum is out of balance and surgery and the laboratory and special branches are overshadowing the other practical branches, let them change their methods and give a well-balanced medical education. If we are becoming so ultra-scientific that we are losing sight of the more practical, let us call a halt and devote more time to the more practical matters.

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# THE TREATMENT FOR CONCOMITANT SQUINT WITH A PLEA FOR EARLY OPERATIVE INTERFERENCE IN CHILDREN—NEW OPERATION*

By Oscar Wilkinson, M. D., Washington, D. C.

The treatment of concomitant squint naturally divides itself into medicinal, treatment with cycloplegics and glasses, covering pads, stereoscopic exercises, and lastly operative. The first thing to be considered in the treatment of squint is the patient. Is he well? What intercurrent physical defect or disease is contributing towards making him squint. These must be corrected, by means of tonics, diet, hygiene or operations when necessary. We must not look at the glaring defect of the crossed eye only, but any general condition contributing to the cause must be eliminated at once. Our next duty is to study its refraction. This all-important subject, first called to our attention by the immortal Donders, has lost none of its interest or value. A careful refractive correction under full cycloplegia is considered essential by all ophthalmologists at the present time. The value of correcting lenses in the cure of squint is so well recognized that the laity are disappointed when you tell them an operation is necessary in a given case.

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*Read before the Section on Ophthalmology and Otolaryngology at Annual Meeting of Tennessee State Medical Association at Nashville, April, 1921.

One of the first steps in the treatment of any case of squint is the accurate measurement of the degree of squint. By this means, we are enabled to determine the amount of progress being made in any form of treatment used. If we are careless in our examinations at the first visits in ascertaining the amount and kind of squint present, and in recording the same, we are hampered afterwards in knowing exactly what results have been obtained by any given line of treatment. The methods which I have used to determine the amount of squint present consist in the use of the perimeter and the Priestly-Smith tape, as modified by Dr Holtzer, of Massachusetts, and described in the American Journal of Ophthalmology, July 1, 1919. In this latter method, two tapes are employed, each 60cc long, on the ends of which are fastened one inch rings. On the end of one is fastened a third tape graded in centimeters. Each centimeter of deviation on this tape represents one degree of deviation of the eye. The method of use, which I have taken from the description as given by Dr. Holtzer, in the above named Journal, is as follows:

"The accompanying diagram illustrates the position of the tape in the measurement of a concomitant squint. To A (ring held by patient against cheek) is attached tape AB and ring B (through which ophthalmoscope handle is placed). BC represents the tape graduated in centimeters (1 cm.=1 degree) attached to ring B, and passed through ring C. The tape AC is the writer's addition, Being the same length as AB, it maintains a constant radius as the hand slides along the graduated tape passing through ring C. BC represents the chord of an arc of a circle whose radii are AB and AC.

"The determination of deviation is made by the Priestly-Smith method. Let us take for example a convergent squint of the left eye. Measurements should be made in a dark room with a lamp situated behind the patient. The ring A is held against the right cheek below the fixing eye by the patient. An ophthalmoscope or retinoscope handle is passed through ring B and held in the observer's left hand. The image of the light behind the patient is now reflected from the mirror of the ophthalmoscope or retinoscope into the fixing eye, and the patient is directed to fix the mirror. Through the sight hole in the mirror, the observer notes the exact position of the corneal image. He now turns the mirror to the left eye, the patient still fixing the mirror with the right eye and notes that the image on the left cornea is situated eccentrically outwards, showing that this eye deviates inward. He now directs the patient to follow, with his fixing eye, a finger of the observer's right hand, over which ring C has been placed. The right hand is gradually moved horizontally outwards along the tape BC while the observer notes the changing position of the corneal image through the sight-hole of the mirror, until the left eye has rotated outwards enough to bring the image to the corresponding situation occupied in the fellow eye (right) when that eye was fixing the mirror. When this point is reached, he pinches the tape and reads off the degree of deviation; one centimeter on the tape equalling one degree of deviation." (This ring is held by the patient himself against the straight eye, and the ophthalmoscope or retinoscope is held up to the eye, This keeps you free to use the ophthalmoscope and get a corneal rebex on the good eye, noting parteularly at what postion of the pupil this corneal reflex is, the squinting of this left eye. You make the patient watch that box until the reflection from the squinting eye assumes the same position on the deviating eye that it was on the normal eye; then you read off of this deviation. I find that particularly adaptable to the reading of the squint on the very small children. You can rattle the box and make them look at the box. They check up very closely. Another means of being very greatly more accurate in the measuring of the amount of the squint present.)

The amount of squint is first taken without atropine. The eye is next placed under atropine, or any suitable cyclopegic, for a number of days, the degree of deviation taken, a careful retinoscopy done and glasses are ordered from the result of the examinations, giving practically full strength. In some cases, it is advisable to use atropine for three or four weeks, protecting the eye during this time with shaded lenses. After the lenses have been prescribed, if there is no tendency for the eyes to straighten and the cross eye is not used, the atropine is discontinued in the crossed eye and used only in the straight one. If this fails to cause the use of the squinting eye, we resort to the use of pads or some form of exclusion of the good eye. This can be done by securing the aid of the parents and having them tie the good eye up snugly so as to prevent entirely the use of the good eye, for, say, one to three hours daily. By this method, in the majority of cases, where there is no central fundus lesion, the eye will develop a central fixation, also a greater degree of vision, and, in time, will possibly be ready for stereoscopic exercises. On re-examining the child, after this character of treatment has been used for a few months, if we find no improvement, and the degree of deviation is marked, we have no hesitancy in proceeding to select a suitable operation, in order to place the eye in a position so that exercises can be the more effectively used.

In studying the degree of squint, it is important to notice, first of all whether the squint is markedly decreased under the use of atropine in both eyes. Any case which is markedly benefitted by the use of atropine for a number of days of even weeks, is apt to be benefitted by the full correction of this patient's hyperopia. However, we will find some cases in which, for some reason or other, the amount of squint seems to have been increased by the use of atropine, this class of patients are not usually relieved by the use of glasses. I wish to emphasize the importance of measuring carefully the amount of squint before the use of a cyclopegic, during the use of the cyclopegic, and after the patient has had his glasses, say for a month. It will eventually determine for you whether the case is to be operated upon or whether it can be cured with glasses, exclusion, exercise, etc.

The method of exercises which we are accustomed to use to develop binocular vision has been the Worth-Black Amblyoscope. While I admit that this is a tedious process in many cases, the securing of binocular vision is so important, both in the obtainment of normal balance of the eyes as well as its maintenance afterwards, that we are often well repaid for our trouble. Fortunately for the busy oculist, the use of this instrument can be taught to the office nurse and with judicious supervision of her work, practically all of the time can be saved for the oculist and good results obtained. In some few cases, who live out of town, the use of the instrument can be taught to the parents, and the instrument itself loaned to them; however, the result in this kind of work will often be disappointing. To my mind, the importance of training the fusion faculty has not been generally appreciated. The fusion faculty is the one element that holds the eye straight when we have mechanically set it so. Eyes without fusion power are never geometrically focused or, in other words, are never perfectly straight eyes, hence the importance of endeavoring to secure such an indispensable aid as fusion in maintaining paralellism of vision in these cases. Here I wish to lay particular stress upon the importance of early treatment of these cases and of early operative treatment when necessary to get binocular vision. Early treatment, operative if necessary, means a developed fusion, and developed fusion, in turn, means straight, useful eyes with good vision, a goal you can never attain in many old, neglected cases.

Worth, and many others of great experience, tells us we must develop the fusion faculty before a child is eight years of age. If this is true, and I am prepared to subscribe to it in a general way, then it behooves us, or, to put it emphatically, it is absolutely essential, to operate as early as possible on these cases that cannot get fusion otherwise, in order to train the fusion faculty. Where we have no fusion, we have no assurance that an eye will remain straight, but with fusion, eyes can and will be kept straight. We should do our duty as surgeons, by setting the eye-balls straight with an operation which does not leave an eye muscle weaker than normal, and we should do this early enough to aid the development of fusion.

**The Operative Treatment of Squint.** When we speak of operative interference in squint, we have first to consider the selection of the cases on which to operate. This is a most important thing to consider. To operate on every cross-eye which comes into our office would be just as malicious as not to operate on cross-eyed children until they are ten years or older, amblyopic in one eye, and all hopes of obtaining binocular vision lost. I make it a rule to operate on any child, at any age, whose amount of deviation is so great that he or she has no possibility of securing binocular vision, and whose amount of deviation does not decrease after six months or a year under the use of atropine, glasses, pads and other exercises. In grown subjects who have worn full correction for a number of years, I have no hesitancy in operating at once, as soon as I am positive of the amount of deviation, with and without atropine. On children as young as three years, I do not hesitate to operate, provided they have been under care for a year, and if with the use of atropine, glasses, and exclusion pads, there is no decrease in the amount of squint. Why sit idly by and permit these children to lose all function of one eye when a simple inoffensive operative procedure will not only remove the embarrassment of the cross-eye, but will also save that eye and make it as good as the other one? And here the thought comes to me that you should accurately measure your amount of deviation and keep a record of it, because if the child shows an improvement on this amount of squint from time to time, these young children should not be operated on, but if the child has so much deviation after a year with the exercises and full correction with hyperopia, I think it is our duty to operate.

I want to plead with you to operate on your cases early and not permit them to go to another man later on in life and have him find them too old for the training of fusion and the visual acuity lost from non-use.

**Method of Operation.** As to the method of operating, we are treading upon dangerous ground. When we consider the operative procedure, the first thing to determine is on which muscle we shall operate and what shall be the character of the operation. For a number of years, tenotomy was the operation of choice. It was so easily done, and of such slight inconvenience to the patient, with such marked and quick result, that even the laity learned to say, "I had a little muscle clipped, and my eye is alright," but experience has taught us that the effects of tenotomy are so uncertain in many cases, and so harmful in others, that some of our best men have advocated that we should no longer cut the internal rectus for squint. We are indebted to Guerin, or Nancy, for our early ideas with reference to advancement, and then come Critchett, Worth, Noyes, Reese, Savage, Bruns, Todd, and a host of others too numerous to mention, who have given us good advancement or tucking operations and whose work has been a decided improvement over the old method of tenotomy.

In my last 40 cases of cross-eyes I have done no tenotomy, and I have come to the conclusion that tenotomy is not necessary but decidedly harmful. Any amount of deviation of the eye can be corrected by proper advancement and it has always seemed to me that we were working backwards when we endeavored to make a strong muscle weaker instead of making a weak muscle stronger, in order to strengthen a deviated eye. The advancement operation of Worth is possibly done most in this country in cases of marked deviation; the more recent one as devised by Verhoeff and the one by Lancaster, both of Boston, are ingenious and effective. The resection of Reese is efficient in low degrees and is used by many.

The chief objection to tenotomy is that it weakens an ocular muscle and it remains weak, and often causes a restriction of motion in the eye. The second objection to tenotomy is that its effects are indefinite. In one case we get too little effect and in another we get too much, which permits at times an exophthalmus and a more disfiguring external deviation. Partial tenotomies are inaccurate and ineffective and I believe future ophthalmogists will straighten cross-eyes with some form of shortening of the weaker underacting muscle.

There are as many methods of operating on the muscles of the eye as there have been methods for removing tonsils, and when one comes to offer a new procedure, he feels he will possibly need a shield to protect him from "ancient hen fruit" or else he should beg your pardon in advance. I have developed a new operation, borrowing a part from two or three different operations and adding one or two new features, and feel that it is of sufficient merit to present to this Society.

The operation consists of two distinct steps, one of which is entirely new, in so far as I know, and the second is a combination of several good operations, to which I have added measurements with a caliper of the exact amount of tucking done. The first step in the operation is the anchoring of a brace in the angle of the eye. The brace consists of a piece of lead plate ½ millimeter in thickness and is of the shape of 2/5th of an oval. The flat side of the semi-oval measures about 14 m.m. and its diameter is about 10 to 12 m.m. Small holes are made in the brace, one near each corner and two near the arc of the circle. A No. 14 twisted silk suture is passed underneath the tendon of the rectus muscle opposite the muscle to be advanced and this suture is threaded through the two holes at the corner of the plate. A second suture of No. 8 or 10 thread is passed into the check ligament in the angle of the eye and is threaded through the two holes in the arc of the plate. After the advancement or resection has been completed the lead plate is tied down snugly to the eye-ball, the contour of the plate being adjusted to the ball, the lids closed over same, and it is left in place till the eighth day at which time it and all exposed stitches are removed.

The second step in the operation is in many respects like Reese's yet different in its essentials and the stitch is much like Lancaster's, though used differently. In this procedure, I measure with a special scale the pull of the strong muscle, I also measure with a caliper the exact amount of tucking done. I can best describe the operative procedures on the screen.

Gentlemen, I present these procedures for your consideration. This splint will stay in place, stretch the strong overacting muscle, and at the same time, prevent this muscle from pulling the eye around and tearing the sutures loose in the tucked or advanced opposite muscle. The method of restriction is not difficult to perform nor dangerous in its execution, it permits of accurate measurements, and I hope and believe you will find it efficient. I do not claim they are perfect but feel they are steps in the right direction and may aid some more ingenious mind in perfecting an ideal method to aid us in these trying cases.

(Dr. Wilkinson presented drawings of a new method of shortening the external rectus muscle. He does a resection of the external rectus muscle after measuring the amount of restriction with a pair of calipers. After finishing the resection Dr. Wilkinson inserts a small lead plate into the internal angle of the eye in cases of internal squint, anchoring same underneath the tendon of the internal rectus muscle with one suture and the check ligament with the second suture. The purpose of this brace is to stretch the over-acting internal rectus muscle, and to hold the eye in a stationary position in order that the stitch in the advanced muscle may not slip or give way, in other words, to secure healing in the advanced external rectus muscle in the position in which it is left at the time of operation.)

## CLASSIFICATION OF STREPTOCOCCUS*

By Lloyd Arnold, M. D.

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No organism has been invoked as the pathogenic agent in such a variety of disease conditions as the streptococcus. The problem of classification and differentiation of the members of this group is very difficult and involved. Occurring as important saprophytic inhabitants of the human body and its environment, they constitute a source of potential infection from which, it is held, disease may be set up wherever conditions arise favorable to the departure of these organisms from their saprophytic mode of life and permitting the invasion of the body tissues. The bacteriologist is confronted with the problem of recognizing the pathogenic streptococci when such organisms are recovered from diseased tissue, and to appreciate what their role is in such conditions. It is therefore essential to have some means of differentiating the pathogenic from the non-pathogenic strains of the organism. The very fact of the difficulties in the way of streptococcus classification renders the subject all the more important, and it is only when the differentiation of these organisms is better and more clearly understood that a fuller comprehension of streptococcus infection can be expected.

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*Read before the Tennessee State Medical Society, April 12-14, Nashville, Tenn.

A brief summary of some of the fundamental principles of the classification of streptococcus that have been suggested by various observers will be given below. It is not the author's purpose to give a literature review, nor will there be included many small deviations in technic advocated by some workers to be of differential value.

Streptococci classified as to their morphological characteristics.

Streptococci classified as to their metabolic characteristics.

I. Action of the red blood cells.
II. Action of sugars.
III. Action of milk.
IV. Action of certain dyes.
V. Antigenic properties.
VI. Action of laboratory animals.

### Morphological Characteristics

The study of the length of the streptococcus chains appearing in smears, either directly from the wound or from artificially cultured growths, the size and staining reactions of the individual elements of the chain, all have not proved to be of any special differential value. Single, small cocci in chains, retaining uniformly the Gram stain, are to be regarded as suspicious strains, but this is by no means a constant rule.

### Metabolic Characteristics.

**I. Action of Red Blood Cells**—This forms the basis of the classification of streptococcus now in general use. Schottmueller found in 1903 that certain strains of streptococci grown on blood agar plates produced a clear transparent area immediately surrounding the colony; these are called **streptococcus hemolyticus.** There are some strains that form methhemoglobin in the environment of the colony, giving this area a greenish appearance and these strains are designated as **streptococcus viridans.** There are still other strains that do not act at all on the blood cells of the medium, usually referred to as **indifferent** types. For practical purposes we speak of **hemolytic and non-hemolytic** streptococci, the latter including the last two types, namely, the viridans and indifferent.

The degree of hemolysis produced by a given strain can be varied by changing the environment, such as chemical composition of the medium, either by the addition of sugars or changing the reaction, etc. The viridans and indifferent types can be changed one to the other by the same method. This latter fact makes the group name, **non-hemolytic streptococcus,** more descriptive for practical purposes.

The **hemolytic streptococci** are usually thought to be virulent or pathogenic, and the strains with a wide zone of hemolysis on blood agar plates, the best types of Smith and Brown, are the most pathogenic. It is true that many of the most pathogenic streptococci do produce hemolysis of red blood cells, but hemolysis and virulency do not run parallel.

A hematoxic substance produced by the hemolytic streptococci is called **streptolysin.** The production of this hematoxic substance is a very complicated reaction and depends upon many factors with no possibility of observing under experimental procedures the action of a single variant. (Cook, Mix and Culvyhause.)

### HOLMAN' CLASSIFICATION.

| Hemolytic Streptococci | Lactose | Mannite | Salicin | Nonhemolytic Streptococci |
|---|---|---|---|---|
| | SUGARS | | | |
| Streptococcus infrequens | + | + | + | Streptococcus fecalis |
| Streptococcus hemolyticus i | + | + | — | Streptococcus nonhemolyticus i |
| Streptococcus pyrogenes | + | — | + | Streptococcus mitis |
| Streptococcus anginosis | + | — | — | Streptococcus salivarus |
| Streptococcus hemolyticus ii | — | + | + | Streptococcus nonhemolyticus ii |
| Streptococcus hemolyticus iii | — | + | — | Streptococcus nonhemolyticus iii |
| Streptococcus equi | — | — | + | Streptococcus ekquinus |
| Streptococcus subacidus | — | — | — | Streptococcus equinus |

### Blake's Classification.

| Hemolytic Streptococci | Lactose | Mannite | Nonhemolytic Streptococci |
|---|---|---|---|
| | SUGARS | | |
| Streptococcus hemolyticus | + | -- | Streptococcus buccalis |
| Streptococcus hemolyticus | + | + | Streptococcus fecalis |
| Streptococcus hemolyticus | — | — | Streptococcus equinus |

**II. Action of streptococci upon sugars—** Gordon in 1905 made extensive studies of the fermentative properties of streptococci from different sources on various carbohydrates, and gave us the first classification of streptococci based on fermentation reactions. This form of classification has been industriously worked upon since Gordon's first publication by numerous observers. The classification of Holman (1916) and Blake (1917) are now most used in this country. Holman used lactose, mannite and salicin; Blake used lactose and mannite as the sugars upon which to base a classification. Both of these workers first subdivided the streptococci into hemolytic and non-hemolytic by Schotmueller's method, then subdivided each of these two groups by the use of the above named sugars. Holman had eight strains in each group; Blake only subdivides the non-hemolytic streptococci and these only in three strains.

In the fermentation as a carbohydrate there is some acid formed as a product of the metabolic activities of the organisms. It has been found that the medium becomes increasingly acid; due to this process, there is a certain point in acidity reached where the streptococci cease to reproduce. This end-point of growth cannot be found with the titration methods, but only by using a method of determining the hydrogen-ion concentration as a standard of acidity. By this process, Ayers (191 ) found the streptococci from non-pathogenic sources. This has been confirmed later by numerous observers. Avery and Cullen have used a colorimetric method of making this limiting hydrogen-ion concentration determination; the results are clear cut and the technic simple. This method is a recent one and promises to be of great help in the differentiation of pathogenic from non-pathogenic strains.

Sigwart has proposed a method of differentiation between pathogenic and non-pathogenic streptococci as follows: Neutral bouillon is inoculated with streptococci from a known pathogenic source and incubated three to five days. This culture is then filtered through a Berkfeld candle. According to Sigwart, pathogenic streptococci do not grow on this filtrate, but the non-pathogenic strains grow well. He explains this on the assumption that the pathogenic streptococci originally grown on this medium have used certain substances that are necessary for the growth of these strains but not necessary for the growth of non-pathogenic strains. Several investigators have used this method and none have obtained consistent results. (Beckmann, Neu.)

The author has found that if a hydrogen-ion concentration determination is made on the sterile filtration obtained by the Sigwart method. it will be found to be within the pathogenic or low acid producing range, Ph 5 to 5.4. Now if this is adjusted to a slightly alkaline reaction, Ph 7.6 to 7.8 which is the optimum reaction for initial growth of streptococci, and a little dextrose added, virulent streptococci grow as well as before; this process has been repeated as many as three times on the same original bouillon filtrate. In other words, the streptococci resemble in this respect the pneumococci, as the above procedure is a repetition of Avery and Cullen's experiment on pneumococci.

The classifications of streptococci, both hemolytic and nonhemolytic, according to their ability to ferment certain sugars has not yielded much information as to the pathogenic power of the strains. But this method of classification is best adapted to solving some problems of interest in epidemiology of the streptococcus infections. The streptococci isolated from the feces are persistent mannite fermenters (Gordon, Andrews and Clawson), but this, as other fermentative reactions, is only suggestive of the source of the strain and not proof of its origin. By the use of Holman's classification which gives us sixteen strains, eight hemolytic and eight nonhemolytic, some light can be thrown on epidemiology if used consistently. The author found in 75 per cent of the cases of streptococcus infections of the head, neck, upper extremity and chest many of the same strains of streptococci that were present in the throat were also in the infected wounds. Of the eight cases of streptococcus infection of the lower extremity, the wound and throat streptococci flora were of different strains. This would point toward infection probably by contact and not hematogenous in origin. Walker used this method in classifying the streptococci present in the throats of carriers and studied their relationship to streptococcus infections occurring in their environment.

**III. Action of streptococci upon milk.** In as much as many epidemics of acute pharyngitis and tonsilitis have been traced to a milk-borne streptococci source, this medium has received considerable attention from bacteriological standpoint. It is true that the saprophytic streptococci are present in all samples of fresh milk and these organisms cause a curdling with acid production within 18 to 24 hours at 37 degrees Cent. The pathogenic strains usually cause curdling at a lower period, if at all. But there is no clear line of differentiation between these two extremes on this medium; the two overlap and cause confusion when used as a means of classification.

**IV. Action of streptococci on dyes.** The power of streptococci to reduce certain dyes has been proposed by some workers as a basis of differentiation of strains. Sherman and Albus (1918) recommended methylene blue in milk cultures as adaptable for this purpose. These authors lay stress on the fact that the more saprophytic strains reduce and coagulate the milk within 24 hours; the pathogenic strains were not so regular in their curdling action and never reduced methylene blue. Brown (1920) and Arnold (1921) by using this method were able to obtain consistent results.

**V. Antigenic properties.** Various investigators have for the past thirty years attempted to classify streptococci by agglutination, preciptin or complement fixation, or a combination of these reactions. The results have been very contradictory and have not yielded a method of practical value. The viridans group seems to be heterologous and the hemolytic homologous in their serological reactions in general. But no specific clear cut classification can be worked out based on these observations. It is held that animal passage, length of cultivation on artificial medium, the reaction of the medium, etc., all have the power of changing the specificity of the antigenic reaction of a given strain. Spontaneous granulation occurs readily with streptococci and when used for tests they exhibit the phenomenon of non-specific agglutination, making reactions very difficult to be read correctly. At present the work done in this field is of greater value from a biological standpoint of relationship of the streptococci groups and strains than of practical diagnotic value.

**VI. Action of streptoccoci on laboratory animals.** If the pathogenicity is determined by injection of microorganisms into a laboratory animal, several factors enter into the interpretation of the results, first among these being the length of time the organism has been grown on artificial medium, and the physical and chemical composition of this medium. Another factor is the anatomical location of the injection of the bacteria. Subcutaneous, intraperitoneal or intravenous routes are used. In the former, we have the local defense to a certain extent to overcome and the usual reaction of the various cells capable of phagocytosis playing a great part. If the organism is put into the peritoneal cavity, the environment is different. This cavity is in reality a part of the lymphatic system (Tendeloo). If injected into the blood stream, we have instituted only an experimental procedure, as the introduction of bacteria into the blood stream of a normal animal does not occur under any other conditions. When boullion suspensions of the microorganisms are used, we are introducing intravenously a foreign protein, and if, as is sometimes the case, this suspension is a part of the bouillon used as a culture medium, we are injecting products of bacterial metabolism along with the bacteria themselves. Intravenously and intraperitoneal routes are usually used by the bacteriologists for the testing of the virluency or pathogenicity of streptococci. Clinically streptococci are characterized by their high degree of invasive power, by which is meant their power of invading the animal body under a wide variety of conditions. By either of these two methods of testing pathogenicity, the invasive power of the organism is not determined by the experimental procedure. The intraperitoneal injection may serve as a test for the further invasive power of the bacteria from the site, modified by the local injury resulting from the injection, but the intravenous method fails completely as a test for the invasive power of the organism. Hemolytic streptococci are regarded as the more virulent types, but many workers have shown streptococcus viridans isolated from normal throats to be pathogenic for laboratory animals, (Horder, Rosenow, Detweiller.) Hemolytic streptococci are usually predominant in the acute infections, the viridans in the more chronic conditions. Recently some German investigators, (Kuczynski) have by the injection of hemolytic streptococci in sublethal doses into the mouse caused an infection of a chronic nature to develop, and have been unable to isolate the streptococcus viridans from the animal thus infected. These workers conclude that the increase of the resistance of the host causes a hemolytic to change into a viridans type, and therefore the difference between the two types in the animal body is dependent on the degree of resistance.

It is a well-known fact that the streptococci from bovine mastitis are not pathogenic for laboratory animals, but produce the typical lesions when injected into the cow. These streptococci are considered by most bacteriologists as pathogenic, the evidence being based on cultural characteristics. (Jones, F. S.)

Several investigators have recorded an increase in the streptococci flora in the upper respiratory tract in cases of diphtheria (le Gros). The author had the opportunity of studying some of the bacterial flora in three cases of diphtheria. The observations were started as soon as the individuals were exposed and continued until recovery.

Immediately after contact with a diphtheria case, the throat flora were normal, only one or two hemolytic and several non-hemolytic streptococci to each blood agar plate. These according to Holman's Classification were for the hemolytic types, Streptococcus pyogenes, the nonhemolytic types were Streptococcus mitis and salivarus strains. By the limiting hydrogen-ion concentration, all were non-pathogenic types. During the stage of hyperaemia, before the membrane appeared, the hemolytic and nonhemolytic streptococci were about equal in number, showing an increase in the hemolytic streptococci. The sugar reactions were practically the same, but about sixty per cent of the hemolytic and nonhemolytic strains would be classed as pathogenic by the limiting hydrogen-ion concentration method. During the membrane stage there was a predominance of hemolytic streptococci, the sugar reactions were unchanged, but all the hemolytic streptococci picked were pathogenic according to the acid production. Several days later, after the throats were normal in appearance and the cases clinically recovered, the throat flora had returned to the same types as were first observed, that is nonpathogenic by the limiting hydrogen-ion concentration method and a predominance of the viridans types.

All of these cases were promptly treated with antitoxin, but if this had not been done, it is very probable that the increase of streptococci flora and their change to a predominently pathogenic type could have exerted some influence toward seriously complicating the conditions.

In serious or fatal cases of streptococcus infections, the author has never found streptococci in pure culture. In two cases recently studied, there was a diphtheroid-like organism present in both cases. The streptococci grew luxuriantly on laboratory medium in symbiotic relationship with diphtheroid, but required special medium to grow when separated from this pseudo-diphtheria organism. It is possible that the combination of these two organisms growing together may have been of importance as a contributing factor in these two fatal cases observed.

It might be stated here that some strains of streptococci are difficult to grow on artificial medium. These strains are usually of the virulent type. A vitamine-bouillon (Arnold 1920) adjusted to Ph 7.8 has been found to be satisfactory, and during the past eighteen months all the fifteen hundred strains of streptococci that have been isolated in this laboratory have grown without exception on this medium. Growth accessory factors in artificial mediums must be taken into consideration by the bacteriologist, as such substances are present in animal tissue and excretions.

Any form of classification that will differentiate between pathogenic and nonpathogenic streptococci, that can be formulated at present will not be found to be serviceable under all conditions for practical purposes. One can differentiate between the more pathogenic or virulent beta hemolytic types (Smith and Brown) and th nonhemolytic large colonies of the more saprophytic types, but the majority of strains will fall between these two extremes.

Indeed it is the number of variants and the multiplicity of forms intergrading between these two extreme types that has tended to lessen the practical value of any classification yet proposed, and to make the clinical pathologist despair of differentiating streptococci and to pursue the easier road of denying the subject its merited importance. The main object of this paper is an attempt to briefly mention some of the problems facing a bacteriologist in working out a classification of streptococci. A great deal of work is necessary before we can with accuracy differentiate between the pathogenic and nonpathogenic strains of streptococci.

The proteus, diphtheria and also the coli-typhoid groups of organisms produce a primary acidity, followed by a neutralization and alkalinity of the medium after the fermentable sugar is used up. The streptococci produce an initial acidity that increases to a point of limitation of growth and remains constant. This is not followed by any effort toward neutralization of the medium as in the above mentioned groups. The metabolic activities of the streptococci are therefore fundamentally different from the first named groups, being closely related to the pneumococci in this respect.

It is the tendency at present to base a practical method of differentiation of pathogenic and nonpathogenic streptococci on the differences between the metabolic activities of these two groups. Some encouraging results have been obtained, but much work needs to be done before this will be accomplished. The enzymes present in the streptococci and excreted by this organism with the effects of variations of the environment are now being investigated in the author's laboratory.

For practical purposes the blood agar plate method, with a morphological examination after Gram stain, combined with Avery and Cullen's method for determining the acidity in dextrose boullion cultures, will be found convenient. If epidemological questions arise, a further subdivision by means of Holman's classification based on the fermentative reactions of streptococci on lactose, mannite and salicin will be found advantageous.

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## THE TREATMENT OF CATARRHAL DEAFNESS, WITH ESPECIAL REFERENCE TO TINNITUS AURIUM.*

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It is rather common in practice for all cases of progressive deafness to be grouped under one heading, this being that vague and much abused term "catarrhal". No attempt is made by many who are practicing otology to differentiate these cases of chronic deafness according to the pathology existing in a given case, and all cases, whether an affection of the labyrinthine capsule or of the sound-conduction apparatus, are regarded and treated as one condition, identical in etiology, and calling for the same routine in conduct. Perhaps this is justified by the results of treatment. At any rate, it would be by the title alloted me for this program, since it generally is recognized that tinnitus is a symptom more frequently associated with otosclerosis than with the so-called "catarrhal" deafness.

So I shall rule out the labyrinthine form of deafness, and consider only that kind which we think begins with an inflammatory condition of the nasopharyngeal mucosa, extends thence to the mucosa of the eustachian tubes and middle-ears, and in which we believe the primary eustachian obstruction is followed by diminished atmospheric pressure within the tympanum, consequent retraction of the membrana, and formation of adhesions of the ossicles, with resulting immobility of the chain.

In consideration of the treatment of this condition, I look back over the years of trying out, and am forced to the conclusion that I could better discuss what not to do in such cases. This applies to the already well-developed case.

It is customary to test the hearing in such cases, and then, if on inflation there is some improvement in hearing for the watch, to say that there is hope of arresting progress. But is progress ever arrested by means of our hands? I believe not. I am not posing as an iconoclast in my attitude toward this subject, but am trying to get down to basic, cold facts.

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It is a regular practice nowadays to tell patients that a submucous resection of the nasal septum will arrest progress of, and perhaps benefit, a chronic catarrhal deafness, the theory of nasal ventilation carefully being explained to the patient, but if there ever was a case where permanent benefit was given by this procedure, I should like to see the carefully kept records to prove it. I am not free from guilt in this respect, for I too, have cast a straw of hope to some of my patients with the offer of a submucous resection, but disappointment has come, as usual. It is a peculiar fact, too, that oftentimes the more marked deafness is in the ear opposite the deflection. These observation are borne out by the experience of some of the ablest otologists making a clinical study of this disease.

If I may digress for a moment from the immediate subjeet, I should like to state that I do not believe deflection of the nasal septum has anything to do with the causation of catarrhal deafness. In this opinion I know that I differ from some of my very able colleagues, for only recently a young woman consulted me with reference to the condition of her nose, and while she had no positive nasal obstruction, said she was told by one of our best men in this work that if she did not have her septum straightened she would grow deaf! Her ears were perfectly normal, so far as I could determine. This is in line with what a man with marked catarrhal deafness in both ears told me the other day, for he said that he had been advised to have an ethmoid exenteration, as it would perhaps prevent progress of his deafness!

I am merely relating these instances as rather extreme claims. Doubtless many times our patients misunderstand our statements, because we know that they sometimes exaggerate, and place entirely too much hope in the smallest things.

The treatment of catarrhal deafness should begin with the child. If there is anything in the theory that a catarrhal congestion of the nasopharynx is the primary cause, the early removal of adenoids and hypertrophied faucial tonsils should be practiced as a preventive measure. In stressing the early removal of tonsils and adenoids, I am, I am sure, indulging in unnecessary advice, for apparently few children nowadays escape this procedure, and oftentimes, sad to relate, even the crawling infant receives this measure of prevention. If the next decade or so brings us a tonsilless age, perhaps we can then determine the importance of these structures in causing catarrhal deafness.

In the adult we sometimes have an eustachian salpingitis, before deafness begins to manifest itself, which is evidenced by a sensation of fullness in the ears, and by a clicking or popping in the ears, as complained of by the patient. Tonsillectomy unusually is indicated in such cases, and frequently is followed by subsidence of the symptoms.

The routine treatment by inflation, insufflating medicated vapors, etc., has never, so far as I know, cured a well-established case of catarrhal deafness. Whether this line of treatment has arrested progress in any of these cases over any definite period is problematical, but we are impelled by the desire to help our patients, if possible, and do not feel that we should altogether discourage them at the outset. If we do resort to these measures, they should very gently be used, and inflation should always be by means of the catheter, and should not be continued over a long period. Even then, it is only in the early cases that we should use this treatment. We have had people to tell us that they have known of instances where the condition was made worse by treatment. This doubtless was not true, being merely the regular course of the disease, but certainly no benefit was obtained, and the otologist received the customary censure.

Ossiculectomy has been tried quite extensively in past years, in the chronic adhesive form of deafness, but so rarely is it mentioned now-a-days that I had thought this procedure had gone the way of all others, yet in a report of the Proceedings of the Otological Section of the Royal Society of Medicine, appearing in March, 1921, issue of the Journal of Laryngology and Otology, Watson-Williams reports the case of a woman, aged 26, in whom removal of a portion of the membrana tympani of the lower half of the handle of the malleus brought enduring improvement in hearing from whisper r. 28 inches, l. 20 inches, to r. 5½ feet, l. 25 feet, as determined two and a half years later. Such results encourage us to a certain extent, but even though Watson-Williams' case held the improvement so long after operation, it would not do to be too sanguine in our expectations, although even one favorable report by a clinician of the ability of Watson-Williams would justify our striving by this procedure to secure results as encouraging.

That resourceful London otologist, Mr. Charles Heath, whose conception of pathology is not always orthodox, nor clear to the casual reader, apparently grouping progressive deafness under one one head, expresses an opinion antithetical to the one generally accepted that progressive catarrhal deafness is due to immobility of the membrana and ossicles, for he regards the symptom as due to flaccidity of the membrana and looseness of the ossicular joints, with decreased intra-labyrinthine pressure, which conforms to the theory originally advanced by Willis of the cause of paracusis. On this assumption, Mr. Heath claims to relieve deafness by tightening the membrana, thereby increasing intra-labyrinthine pressure, using for this purpose a cartharidin blistering solution, with which the membrana is painted, producing a congestion and tightening the drumhead.

Several years ago our chairman and I were in London together, and were shown much of his work by Mr. Heath. Being duly impressed, on our return we put into practice some of his ideas, and I endeavored in several cases to get the results claimed by Mr. Heath from contracting the membrana tympani by painting it with his cantharadin formula, but was not successful with these, and therefore can not, I am sorry to say, from my own clinical experience confirm the enthusiastic findings of Mr. Heath.

During the time that I have been engaged in otological work, and looking for and applying such treatment as has been suggested for catarrhal deafness, I have found nothing to lend any hope—that hope which Mr. Alexander Pope says "springs eternal in the human breast"—for those so afflicted, but nevertheless, in the face of this discouraging fact, I am a strong advocate of the clinical application of every tenable theory in treatment that is advanced for the relief of a condition so distressing and so baffling to our utmost scientific efforts. What I would decry is the practicing of irrational surgery in these cases. with illusory promises and consequent great disappointment.

Two cases in point I should like briefly to report:

A man, aged 24, was seen by me in June, 1916. He had been growing steadily hard of hearing in both ears for some time, and occasionally had a sensation like "water" in the ears. Much family deafness. Hearing for the watch, r. 4 inches, l. 30 inches. Fork and voice tests in keeping. Small faucial tonsils; irregular septum. Nothing was advised by me save occasional inflation. In December of the following year I again saw him, and learned that he had had a tonsillectomy and submucous resection in Fort Worth, a short while after I saw him, with a promise of improvement in his hearing, but he thought his condition had been made worse, instead of improved. A few weeks ago I saw him again, and his hearing had markedly decreased in the left, or better ear, and was reduced to two inches in the right.

A woman, 36 years of age, about a year ago suddenly developed a right facial paralysis. A short while afterward a submucous resection and tonsillectomy were done to relieve this. Recovery from the paralysis slowly ensued, until now it is only slightly noticeable. Two months ago, she noticed that she was quite deaf in the right ear, and had a most disagreeable roaring in this ear.

Examination showed retraction and thickening of both membranae tympani. Hearing in the right ear was four inches from the watch, medium voice 8 feet, negative Rinne and positive Weber. The left gave 30 inches for the watch, and low voice at 8 feet.

The paralysis in this case probably was refrigeratory, and refrigeratory facial nerve paralysis is best treated by myringotomy and inflation, so the expense of the operations done in her case, which was quite a consideration with her, might have been avoided, and despite the correction of her septal deflection and removal of her tonsils, she has developed a marked catarrhal deafness and bad tinnitus.

Now to turn briefly to the other portion of the subject alloted me by our secretary—the treatment of tinnitus.

This distressing symptom at times becomes even more disagreeable than the accompanying deafness. There have been instances where the head noises have caused mental derangement, or it may have been vice versa. I recall one patient, an elderly woman, who came to me for head noise—bells ringing, crickets singing, and other orchestral accompaniments, and these grew so bad that she eventuated in the asylum.

The intelligent treatment of any given condition is based upon a knowledge of the etiology, as well as pathology, and a knowledge of the cause of tinnitus arium is defective, in that various conditions are given as causative. For a while I ran my cases through a series of blood-pressure tests, on the assumption that high blood pressure caused the head noises, but found that patients with low blood pressure were affected just about as much as those with high. The theory that the symptom is of nervous origin of course always is acceptable, it has such wide latitude, and unquestionably there is an auditory nerve disturbance. Intra-labyrinthine pressure from fixation of the foot-plate of the stapes doubtless has a great deal to do with the causation of this symptom, and tinnitus is so pronounced a symptom of otosclerosis, where we have fixation of the foot-plate of the stapes as a feature. With so many assumed causes, naturally we have had many forms of treatment offered, and all with about the same results.

One afternoon recently the chairman of this section and I were engaged in the pleasant diversion of trying to see which of us could get a little white ball into eighteen holes with the fewest number of strokes, and as this game is provocative of conversation, profane and otherwise, we fell to discussing this subject of the treatment of tinnitus, and I asked him if he recalled some cases upon which he had operated early in his career, in one or two of which I assisted him, where tenotomy of the tensor tympani and stapedius muscles was done for the relief of tinnitus? He replied that he did, and that while no relief was obtained, yet the procedure was justified by excellent authority.

So it has been with everything offered, and we now are just about where we always have been, and that is, unable to afford these patients relief.

Massage of the membrana and ossicles with the Seigle otoscope, vibration and other forms of mechanical treatment have proved without avail. Sodium iodide, potassium iodide, or quinine sulphate internally may benefit some cases, but not for long.

I think it is rather bad taste to apologize for a paper, but in this instance I have undertaken to write something on a subject that was really "wished" on me by our secretary, and it is a topic so unfruitful as to progress, and so frequently written about to practically the same end, that I feel guilty in my insufficiency. In going over my own clinical experience, and in a casual review of the literature, I am forced to the conclusion that no case of well-developed catarrhal deafness is ever benefitted by any procedure, and no surgical or therapeutic measure ever relieves tinnitus arium. There may be some improvement in early cases, but in the end, if observed in subsequent years, our hopes of permanency in improvement are dissipated, for the almost invariable report will be that the condition steadily has grown worse.

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## DISCUSSION.

Dr. Lewis M. Scott, Jellico: When I received notice that I was to open the discussion of Dr. McKinney's paper, I wondered why he selected such a subject. He has now explained by saying that the Secretary wished it on him. Well I wish that the Secretary had wished the opening of the discussion on somebody else instead of on me. (Laughter) Not many of us like to treat these cases of chronic deafness, since we can but promise but little from any kind of treatment. In fact, when a patient of this kind comes to us for help, we almost wish that he had gone to the other man. They are indeed distressing cases, and especially where they are associated with tinnitus aurium. If the causes, such as hypertrophied tonsils and adenoids, nasopharyngitis, nasal obstructions, etc., were removed in early life, there would be fewer cases of chronic deafness to deal with. If children were taught the importance of blowing the nose when suffering from a head cold, and also the proper manner of doing so, many more cases might be prevented. It is surprising to see how few children have thus been instructed. Even many adults do not know that by not closing one nostril while blowing the nose, there is great danger of forcing some of the secretions through the eustachian orrifice. In dealing with a case of chronic deafness it should first be determined whether or not it is one of true oto-sclerosis, a condition where little or nothing can be promised from treatment. As a diagnosis sign, Dr. J. Wright Downey of Baltimore, suggests a very uniue method of determining whether or not the case is one of true oto-sclerosis. He places the tip of an electrically lighted otoscope, with the massage bulb attached and held collapsed, snugly within the external auditory canal, the bulb of the instrument now allowed to fill with air, the drum head being kept under observation, he notes the results: "1. If there follows an immediate filling up of the vessels, so that a net work of small arteries can be easily traced in the superior-posterior canal wall, in the flacid membrane and along the posterior border of the malleous handle, and if this hyperemia can be markedly increased by a few seconds of gentle massage, we are probably dealing with a pathologic process in which there has been little or no permanent circulatory disturbance. Infiation, followed by gentle massage, is beneficial in these cases.

2. If no hyperemia can be produced by negative pressure or by a few seconds of massage, the disease present is in all likelihood a true oto-sclerosis with beginning ankylosis of the stapedial articulation, spongification within the labyrinthine capsule, and actual arterial changes probably of a sclerotic nature. Massage in these cases is **not** beneficial and may prove harmful.

Dr. M. M. Cullom, Nashville.—Mr. Chairman gentlemen, I must confess that I am by nature an optimist, and I do not altogether share the essayist's pessimism on these cases. I always examine them with a great deal of interest, in the hope that I can do something for them; because I do not think there is anything in the world that is as distressing as deafness. We have all noticed that deaf people are very much more melancholy and depressed than blind people. They are very much more apt to become sensitive and to draw away to themselves, because they feel like they cannot hear the conversation and that people are talking about them. I think it is a much more distressing loss of sense than the loss of sight, as far as the patient is concerned. Of course we cannot think of any calamity much greater than the loss of vision, but it is a fact that deaf people are much more depressed.

I think the main thing is to get an accurate diagnosis.

I am very glad that Dr. McKinney left off otosclerosis because like Dr. Scott says, that is one it is of the greatest importance to make a carething that nobody wants to tackle. But I think ful examination and try to determine the cause of the deafness and to make a very careful examination of the respiratory tract. I think that is something that ought to be done whether the patient is deaf or not. There may be reasons why those things should be attended to aside from the deafness,, but if it will do the deafness any good, there is so much gained, and I must say that I have seen improvement in putting the respiratory tract in good condition.

I did a sub-mucous on a gentleman five or six years ago. He had tinnitus in one ear and loss of hearing, and he reminds me every little while that that operation straightened him out, or at least he got straightened out, and he attributed it to the operation. He was very happy about it as well as being pleased with the result of the sub-mucous. I think we ought to go over the cases very carefully and see what can be done for them. There are so many different causes for deafness, we ought to try to find out whether they are being poisoned in any way. I have seen cases that I thought were the results of tobacco poisoning, just as we see tobacco amblopia. I have cut off their supply of tobacco and alchohol, and helped them; we think we can get a type of alchohol neuritis in other parts of the body as well as in the optic nerve.

Of course the symptoms of tinnitus are very very distresing. There are so many causes for that, that a careful examination ought to be made to try to locate the particular cause. Now of course we have the case of tinnitus as a result of impacted cerumen. That is a very simple cause. And we have a tinnitus which can be attributed to obstructions of various kinds, and we ought to try to locate them. And I think that in the majority of cases of tinnitus that you can do something for the patient. Of course in a great many cases nothing does any good and you are very much disappointed in what you do.

Dr. Chappel used to say that the simplest thing in the world was to be an aurist. He said all in the world you needed was a syringe, and you looked in the ear, and if the patient had wax you would cure him, and if he did not have wax there wasn't anythng you could do for him.

I think we have progressed from that stage and I have very great hopes that with the advance of medicine we will show the same improvement that other lines have done. I always examine these cases with a great deal of interest, and try to do the best that I can for them.

Now we are apt to get pessimistic because we do not get results that we hope for; but do not let us turn loose something that we have. There is good in the use of the catheter, and inflation, else it would not have become so general, and if we are pessimistic about these things, we are liable to turn loose the little good that we can do in some cases; and I will tell you if there is a little help to a deaf person, it worth a wonderfu amount, and is worth his time and your time. If you are able to help even in a slight degree, and encourage him all you can and work with psychology. All those things are helpful. Of course we have to be very careful in the selection of the cases in which to use inflation. If you take a case of deafness where there seems to be absolutely no abnormality, the tubes are wide open, you can do a great deal of harm with inflation; but these things have to be done intelligently and we have to attack our cases with judgment, and I want to register myself as an optimist rather than a pessimist.

Dr. Oscar Wilkinson, Washington, D. C.—I didn't have the courage to get up and say anything until Dr. Cullom spoke. I will have to admit that I have been an optimist in medicine. I don't know that I can come up with our friend Savage, but I am still optimistic.

With reference to the treatment of catarrhal conditions, I think we have plenty of excuse for treating our patients. I will admit that I believe that the therapeutics of otosclerosis today is no better than it was fifty years ago. I have been using a little device which I described before the International Otological Congress at Boston in 1912, but which did not seem to create much of a furore, however, I think it has been of sufficient benefit to my practice to keep using it; I had a number of men from different parts of the country write me letters saying "What do you do for catarrhal deafness cases?" They say that "I do not treat them like you do." I will describe on the board the best I can, a little aparatus which I have used since about 1905. It is very simple in its construction; and I do believe that the simplicity of it might appeal to some of you, and I would be glad if you are interested, to have you see it. I use a bottle; into which two tubes run. One tube has an attachment for the eustachian catheter, and the other tube has an attachment for an air tank cut-off. The first tube runs only through the cap in the bottle, whereas, the second tube runs down near the bottom of the bottle. I place in the bottom of this bottle, two or three drachms of an iodine-chloroform and camphor mixture, the proportions being about an ounce of chloroform an ounce of tincture of iodine, to which has been added a drachm of camphor. Now I put in this bottle, fresh every morning, just about a drachm of this solution. This solution is heated slightly over an argan burner. That enables the iodine to be more readily vaporized. A current of air from an air tank is blown through the tube connected with the eustachian catheter and thus blown into the middle ear. Enough iodine can be blown through the bottle after it has been slightly heated to stain the cuff, showing that you have been really getting some iodine into the middle ear. Very frequently the sensation of the chloroform and iodine is so strong that the patient will wince a little bit from it,, and if you will take your speculum and look at the ear drum, there is to be observed quite a congestion.

I believe that inflation in otosclerosis is rather contra-indicated than indicated.

Dr. C. D. Blasingame, Memphis: My experience has not been long enough to judge of the end results of treatment in these cases, but I do want to speak of the association of catarrhal conditions of the nose and throat with catarrhal deafness as I have seen it demonstrated in many thousands of cases that I saw in the army in my hospital experience. They are so inseparably linked together that I am forced to believe their relation is one of cause and effect. My observation has been that it is a very rare exception where you find catarrhal deafness that you do not find a catarrhal condition of the naso-pharynx, while, on the other hand, it is rare where you find a clear naso-pharynx associated with catarrhal deafness. Ability to correct the nasal and throat defects form the basis of our optimism in treating catarrhal deafness.

A case I had the past year I think teaches us something on this point. A mastoid case secondary to middle ear disease. I operated on the mastoid by the Heath method and saw it grow up soundly from the bottom of the cavity. Hence, it was certain that the subsequent history was not due to trouble in the region of the mastoid. After the mastoid healed there was no discharge from the ear, except at times when the patient would have some cold a small of fluid would drain from the middle ear, but only at night while lying on the back. Examination of the ear contents showed only mucous and epithelial cells. This condition continued for three or four months. There was a post nasal catarrh and a deviation of the nasal septum toward the side of the operated ear, which obstructed aeration of the nose on that side. A sub-mucous resection was done. Since this healed there has been no fluid whatever from the middle ear and that has now been several months ago. I am sure that the trouble was a catarrhal eustachian tube, which drained into the mouth during the day, but on lying down at night, the tube was inverted and drained out through the middle ear. Proper aeration of the post nasal pharynx and tube on the side effected a cure, temporarily at least, of the tubal catarrh. The result in this case justifies my faith in opening the nasal passages for aeration and drainage of the middle ear and eustachian tube in catharral deafness cases.

Dr. Herschel Ezell, Nashville:

Mr. Chairman, I firmly believe that a deflected septum, as well as other forms of nasal obstruction, does cause middle ear inflammation resulting in tinnitus and impaired hearing; and in this particular, I differ with Dr. McKinney. I have so often seen cases where there was a deflected septum and on the same side, impaired hearing with tinnitus or without tinnitus, that I think that it is safe to say that they are associated. I believe that other members, the majority of the other members present, as well as throughout the country, will bear me out in this statement, that the impaired hearing as a rule is on the side towards the deflection of the septum. I have had improvement in cases after operation. I won't say that the majority of my operations have resulted favorably, but it is frequently the case that both the hearing and the tinnitus are improved.

Dr. J. P. Crawford, Nashville:

Mr. Chairman, I once held with Dr. McKinney in my early years, but I came to the conclusion after several years treating that we get in a majority of these cases just about what we put into them. Now there is a class of cases, there is not any question in my mind, I think the majority of us, I thinp Dr. McKinney will agree with me, that if we can eliminate the nasal obstruction that we at least give our patient a chance. We have to remember that we have three things to consider. Your patient is possibly going to better under treatment; you may hold him where he is; if he is allowed to go on without any treatment then he is going to go to the bad. One of these things is dead sure. On the other hand, sometimes you have an obstruction in the eustachian tube. I can illustrate that better by a report of a case that came to me. He had been to three or four men in Nashville, He had been to New York, he had been to Philadelphia, and the way he put it was this, that he had been to the best man in New York, to the best man in Philadelphia and to the three best men in Nashville, and they had not suggested any obstruction. "Well," I said "I can agree with you, you may have been to the best man in New York and Philadelphia, but not that you have been to the best man in Nashville. You have the obstruction irrespective of what any of them say."

Now, I have for a number of years in all of those cases when they came in, tested their hearing with a watch. Then I inflate the drum membrane, inflate the ears with Politzer's bag. If you get an increase of hearing you are pretty dead sure to find that you have an obstruction of the Eustachian tube, and in all of these mid-hearing after the inflating of the tube, that is dle ear cases, you have always a reduction of the these old chronic middle ear cases. In this man the hearing promptly came up, I said, "You have some obstruction of your tube." He was a man forty-six years of age, I said "You possibly have adenoids and the only way to find that out is to go in there with your finger and find out, so he agreed to that. I examined his nasal pharynx and found that it was full of adenoids. I said you have as many adenoids as a ten-year-old boy. The man was critical, skeptical; and he went out and said he would come back in a few days and he went to one of these gentlemen, I don't know who, I didn't ask him and haven't found out until today. He said "Doctor, I wish you would examine my throat and see if I have adenoids." So the doctor promptly did it. He said, "Yes, you are full of adenoids." And we will take them out," and the patient said to him: "Why didn't you find those when I was coming to you?" And the doctor said, "Well, I wasn't looking for them." So he came beack to me and I took those adenoids out and after a few weeks treated him by inflation and today his hearing is as good as any man's in this room.

Now I have had a number of cases just that way and I do not give any hopes in these old chronic patients that we know and recognize as old chronic middle ear catarrh, any promise at all, but I do believe that we can do harm by continuous treatment of these old chronic cases because we are liable not only to relax those drums but I have seen cases that after three or four weeks treatment, improved some and then if you continued to treat them, they would go down, and I make it a rule if my case improves some four or five or six weeks, I treat them for a week longer and if no further improvement, I stop it at once. I have never been able to get any benefit after five or six weeks or two months treatment in these middle ear cases but I have seen some cases that really were made worse after prolonged treatment and for ten or fifteen years I have not treated my cases over from six to eight weeks, and if you are going to get any benefit you are going to get it in from three to four weeks; and in my judgment prolonging treatment will do much harm.

Dr. J. J. Shea, Memphis:

I begun by using 10 per cent solution of dionine, but several cases complained of vertigo following its use so that my routine now is a 2 per cent solution. Diodine is of value for a case of acute tinnitis, that is a case that presents itself with the remark, .'The noise has increased to such an extent in the past twenty-four hours as to be unbearable." I imagine that diodine acts the same on the Eustachian tube as it does in the eye, that is through its lymphatic action. The manner of using dionine is to first catheterize the tube and then instill into the catherter several drops of the solution and forcing this by air pressure into the Eustachian tubes.

Dr. E. C. Ellett: I want to relate a case with which Dr. Kinney is familiar. In 1912 I examined a lady with otosclerosis. She had normal ear drums, open tubes, and impaired hearing with normal upper tone limit and elevated low tone limit. Whisper was heard twenty feet right, three feet left. The septum was deflected to the right, and I advised that it be straightened, but did not think that it would help the hearing. "Then why operate?" she asked. "Because" I replied, "some years from now some will look in your nose and hold up his hands in horror and tell you if you had had your septum operated on when the ear trouble began, you would not have become deaf, and I do not want you to blame that on to me." In December she heard whisper six feet with the right ear. In February, 1913, I operated on her. In March the hearing, right ear, for whisper was twenty feet, in May five feet, in June three feet, Feb. 1916, eight inches. The improvement was temporary.

I have practiced otology for a good many years and I never did a case of chronic deafness any good. I never saw a case of chronic deafness that anybody else ever did any good, and I never heard of a case of chronic deafness that anybody ever did any good, except just as we have heard it here, when some says that "I have treated some of these cases in such a manner and they have gotten to hear better."

In regard to tinnitus, injection of dinoine into the middle ear through the Eustachian catheter has permanently relieved some patients of exaggerated tinnitus. Not that they are without tinnitus, but they are perfectly satisfied with the relief they have experienced.

Dr. Richmond McKinney, Memphis, (Closing Discussion):

Mr. Chairman, The discussion of my paper has been so free and so varied in the matters considered that I feel as must have one of old Bill Shakespeare's characters when he said, "Turn loose the hell-hounds of war, and by St. Paul! to heaven or to hell!" So it has been with this discussion, running from one extreme to the other.

Dr. Scott brought out some points in regard to the possible cause of this condition, but Mr. Heath, whom I quoted in my paper, has made one very important point in his various contributions to our knowledge on this subject that I desire to mention, and that is, in regard to blowing the nose. He says very few people know how to blow the nose, and this is the reason we have so much deafness. He calls catharral deafness "handkerchief deafness." That is right to the point. I presume if we would teach children in blowing the nose not to hold both sides of the nose, but just one side, and not get the back pressure in the middle-ears, we might avoid some of these consequences.

I am always glad to find an optimist. Dr. Cullom is certainly an optomist when he comes to treating catharral deafness, but he mixes up his classification a little, because he spoke of toxic auditory nerve deafness, and that was not considered at all.

I have ever since I began practicing been testing out my cases, but I have not be able permanently to improve them. If I find some cases that are able to pay the prevailing high railroad fare to Nashville, I may send them to Cullom, and get him to try his hand on them.

I wish to call attention, however, to the fact that in my paper I did advise the use of anything and everything that we thought could be an advantage; I do not give these cases up all together. I say go ahead and do everything that gives favorable promise, but I do decry promises of results from unnecessary surgery.

I had hoped, when Dr. Wilkinson got up to talk to us, like the "wise men from the East," he might have brought us valuable information, but probably due to the fact that he has let his eye work overshadow his ear work, he may not recall that the apparatus and method he mentioned were described in Dench's text-book on otology fifteen or twenty years ago. I used it for a while, but discarded it. I used the iodine-chloroform solution, just the same as Dr. Wilkinson mentions. I think all of us have tried that more or less, and the injecting of this vapor into the middle-ears, with the hope that it would do some good. I have never found it to do any good, and so have discarded it.

Dr. Blasingame spoke of a case of apparently suppurative otitis media. It did not sound like a pure catharral deafness. That is what we are discussing.

Dr. Blasingame: Nasal catarrh.

Dr. McKinney: I think you said there was a purulent discharge.

Dr. Blassingame: That was before the operation.

Dr. McKinney: I beg your pardon. I did not get the drift of that. Nineteen out of twenty people in this country have what we call cattarh. I don't believe the real cause of this kind of deafness has ever been discovered. Maybe I am too much of a skeptic in that respect.

Dr. Ezell spoke of his very flattering results. I believe he has left the room. I don't like to discuss a man's remarks when he is not present.

These cases that he reports are so very flattering that he ought to keep careful record of the reports of cases. Casual reports of cases are of no value. He ought to detail his reports and get these cases together; that would be very valuable, if he gets such wonderful results from doing these operations. He ought to test his cases thoroughly before operation, and get the condition of hearing afterward, not a few days or six months afterward, but some years afterward. He ought to examine them from time to time, have them come in, and get his reports collated, because he differs from the reported experience of men who have been doing this kind of work many years, and who have made extensive clinical investigation.

Dr Shea mentioned dionine for tinnitus, and after hearing him speak of that agent some time ago, I have been trying it, but am not in a position to give a final report. I am not going to report on it until I am able to say something conclusive.

One trouble is we are not making a carewul enough study of our cases, collating them, putting results down, examining them from time to time and seeing what results we have. Personally I do not believe that any case of chronic sclerotic deafness has been benefitted by any kind of treatment, and I shall stick to this assertion until convinced of the contrary by scientific study.

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## MINUTES OF HOUSE OF DELEGATES.

(Continued)

### THIRD DAY.

Thursday Morning, April 14.

The House of Delegates was called to order at 8:30 o'clock by the Chairman, Dr. Sheddan

Minutes of the previous meeting were read and approved.

Report of the Auditing Committee was submitted, showing the Treasurer's report examined and found correct. Dr. Taylor moved that the report of the committee be received and spread on the minutes.

Motion carried.

Dr. Dulaney stated that at the meeting of yesterday, an error had been made in selecting delegates to the National Convention of the A. M. A., and requested that the nominating committee be permitted to retire for the purpose of making the correction.

This request was granted, and on motion the committee retired to make correction of error.

Report of the Trustees was called for, but only one of the Trustees was present at the meeting, and there was no report.

Dr. Everett, from Shelby, stated it was necessary for some of their delegates to return to Memphis, and he wished the House of Delegates to seat Dr. Woody and Dr. Smith as delegates.

A motion that Drs. Smith and Woody be seated as delegates carried.

Dr. Parker was also seated in place of Dr. Watson, representing Henderson County.

Dr. Dulaney insisted that each member do his part to assist the Editor of the Journal, and suggested that those who do not submit articles at the proper time be fined and that perhaps this penalty would make them more prompt in getting their papers in on time.

The proposed amendment to the By-Laws, providing for a Section of Pediatrics, was submitted for the action of the House of Delegates. Dr West moved the adoption of the amendment. Motion seconded.

Dr. Waller stated that he took his degree in medicine many years ago, and at that time the question of babies was hardly touched upon, but that in the last twenty to twenty-five years, it had become an important and distinct specialty. He urged the necessity of giving special care to the child at birth, and through its first years, in order to save the children that are being lost daily through the carelessness and improper care by doctors and parents. I second the motion for the adoption of the amendment to the By-Laws.

The motion carried and the amendment was adopted.

The Secretary submitted the following resolution from the National Research Society:

Secy., Tenn. State Medical Assn.,
327 7th Ave.,
Nashville, Tenn

My dear Secretary:

Will you kindly, in behalf of the Anaesthtists of the United States, submit the following Resolution for a Section on Anaesthesia in the A. M. A., to your House of Delegates for consideration and favorable action:

WHEREAS, the safety of patients, the advancement of surgery and the requirements of hospital service demand the rapid extension of the specialty of Anaethesia, therefore be it

RESOLVED, That the Tennessee State Medical Association hereby petitions and urges the House of Delegates and the Council on Scientific Assembly to establish a Section on Anaesthesia in the A. M. A. during the Boston Meeting, June 1921.

This Resolution is now being considered by the Council on Scientific Assembly, and it has the endorsement and enthusiastic support of the incoming officers of the A. M. A The Resolution will be introduced in the House of Delegates by Dr. F. C. Warnshuis, Vice-Chairman, and will be seconded by Delegates representing entire State Societies that have already acted facorably in the matter.

The Resolution is also being supported by petitions signed by hundreds of Fellows of the A. M. A. in all parts of the countrly."

On motion duly seconded, put and carried, the Delegates to the American Medical Association were instructed to vote for the above resolution.

Dr. Everett read an amendment to the By-Laws proposed by the delegation from Shelby county as follows:

"Amend Chapter V, Section 6 of the By-Laws of the Tennessee State Medical Association so as to read as follows: The report of the Nominating Committee and the election of officers shall be the first order of business in the House of Delegates after the reading of the minutes on the afternoon of the second day of the annual meeting."

This proposed amendment lies over to be acted upon at the next annual meeting.

Dr. West explained the difficulty in keeping enough members over the last day, and that the action as previously taken with the amendment to the By-Laws seemed the best solution of the problem.

Chairman: There now being nothing else before the House, we will take up new business.

Dr. West: Mr. Chairman, I would like to submit the fallowing report of the Board of Councilors relative to charges brought against Dr. F. B. Hulme by the Giles County Medical Society. Appeal was taken by Dr. Hulme to the Councilors of the Association.

"After consideration of all the evidence presented by both sides, it is the unanimous sense of the Board of Councilors that the charges preferred by the Giles County Medical Society against Dr. F. B. Hulme are not sustained.

S. R. Miller,
Chairman Board of Councilors.

Olin West,
Ex-officio Secretary Board of Councilors."

The Chairman: Gentlemen, you have heard the report of the councilors.

Dr. Gillespie moved the adoption of the report.

Dr. Sheddan stated that it was the understanding of the Chair that the report of the Councilors was final and that the House of Delegates had no further anthority in the matter.

Dr. Abernathy stated that he wanted to go on record as being opposed to the action of the Councilors, as he did not believe that they had justly decided this matter.

The Chairman stated that if the Delegates from Giles County wished to take further action he knew of no place to which appeal could be made unless it be the American Medical Association.

The report of the nominating Committee was presented and read by the Secretary as follows:

"The Committee on Nominations begs to submit the following names to be ballotted on in connection with the election of officers for Tennessee State Medical Association for the next year:

For President, Dr. Wm. Britt Burns, Memphis, Dr. E. W. Cocke, Bolivar, Dr. T. B. Wingo, Martin.

For Vice-Presidents, Dr. L. .W. Edwards, Nashville, for Middle Tennessee, Dr. A. B. Dancy, Jackson, for West Tennessee, Dr. G. P. Zirkle, Kingston, for East Tennessee.

For Speaker of the House of Delegates, Dr. A. F. Richards, Sparta.

For Treasurer (Trustee of the Journal), Dr. J. F. Gallagher, Nashville.

For Secretary-Editor, Dr. Olin West, Nashville.

For Delegate to the American Medical Association, Dr. L. A. Yarbrough, Covington.

For Alternate Delegate, Dr. W. J. Breeding, Sparta.

A. F. Richards, Chairman.

J. L. McGehee, Secretary.

Committee on Nominations."

Upon motion duly seconded and carried, the election of officers was entered into and resulted in the election of Dr. Wm. Britt Burns, President; Dr. L. W. Edwards, Vice-President for Middle Tennessee; Dr. A. B. Dancy, Vice-President for West Tennessee; Dr. G. P. Zirkle, Vice-President for East Tennessee; Dr. A. F. Richards, Speaker of the House of Delegates; Dr. J. F. Gallagher, Trustee of the Journal; Dr. Olin West, Secretary-Editor; Dr. L. A. Yarbrough, Delegate to the American Medical Association; Dr. W. J. Breeding, Sparta, Alternate Delegate.

No further business was brought before the House, the House of Delegates adjourned.

Nashville, April 14, 1921.

Olin West, Secretary.

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## REPORT OF COMMITTEE ON HOSPITALS.

To the House of Delegates:

Your Committee on Hospitals is composed of the following physicians and surgeons, members of this Association:

J. P.Taylor, M. D., Wartrace.
W. C. Dixon, Nashville.
G. W. Williams, M. D., Columbia.
J. W. Sanford, M. D., Ripley
H. L. Fancher, Chattanooga.
C. N. Cowden, M. D., Nashville.
W. P. McDonald, M. D., Spring City.
E. C. Elliott, M. D., Nashville
J. K. Blackburn, M. D. Pulaski
J. A. McCullough, M. D., Maryville
G. E. Horton, M. D., Shelbyville.
J. C. Brooks, M. D., Chattanooga.
J. P. Tillery, M. D., Knoxville.
S. H. Hodge, M. D., Knoxville.
W. Scott Farmer, M. D., Nashville.

On February 18th, I was notified by Dr. West, (Secy. State Med. Association. that I sent the following letter to all other members of the Committee:

"My dear Doctor:

You have been appointed a member of the Committee of Hospitals to make a report at the next Annual Meeting of the Tennessee State Medical Association at Nashville in April.

At the last meeting in Chattanooga there was quite a discussion regarding the Nursing problem. Please advise me immediately of any suggestion you may have to make that will bring about better efficiency in all of the Tennessee Hospitals. As chairman of this committee, I specially request that you do not fail to let us hear from you with any suggestions you may have to make to be incorporated in our report. I am inclosing a stamped envelope for reply."

I had replies from only three members of the Committee, so you can readily see that your Chairman has a very incomplete report.

I wish to call your attention to the fact that at our last meeting, in Chattanooga, a resolution was passed which directed the Chairman of this Committee to get in touch with the National Association of Nurses, which met at Atlanta one week after the State Medical Association at Chattanooga and to confer with them and ascertain if they had any relief to offer as to the shortage of nurses. We sent a telegram and followed it with a letter, with the result that the Nurses' Association sent a Miss Eldridge to Nashville on May 28tth, 1920, and I called Drs. Caldwell and Gallagher to confer with her; she also went to Nashville and conferred with Dr. Cowden and others. The conference between the physicians and Miss Eldridge of the American Nurses' Association was far from satisfactory and no definite conclusion was reached. When she left the conference that was held, she dictated the following as a solution for the Nursing problem which is given verbatim for your consideration:

''The shortage of nurses—i. e., graduate nurses—is rather more relative than real, because most of our schools are turning out the biggest classes this year they have ever had.

Since the war there have been a number of fields open to nurses; nine hundred nurses in the U.S. Public Health Service, where they had practically none before the war; twenty-three hundred in the immediate employ of the Red Cross; two hundred and eighty-six taking post-graduate courses at Teachers' College, Columbia University, besides a large number of others taking post-graduate courses thrugh out the country, where public health courses have been established. Another very pronounced thing is that hospitals are employing more graduates than ever before. Then, nurses are in laboratory work, ansthesia, x-ray work and in doctors' offices in greater numbers than they have ever been before; also there are a larger number of other fields into which they have gone. A large number of nurses are going into other fields of business and many are getting married.

''Most of the nurses taking above positions, except matrimony, have been from the private duty field. Hospital authorities tell us there is a greater demand for nurses in hospitals than ever before.

### The Pupil Nurse Shortage.

''Nearly every school in the country increased its number during the war, from one to fifty, as a war service; also there are a thousand fields open for woman today, and the shortage is not only in nurses, but in every field of work. We are told that the nurse shortage is practically due to the unfavorable reports of our schools, given by the women who left after the armistice—complaints of long hours, inadequate teaching, and, in some instances, poor living conditions.

### The Remedy.

''The remedies suggested are; shortening of the hours of work, for pupil nurses, to a maximum of fifty-six hours per week; the employment of properly prepared teachers, and the other things necessary for a good school. Where necessary, nurses' homes and the employment of more helpers to take over that part of the work which is not of educational value, and also a general campaign of publicity to put before the young women of the public the value of nurses training, the many fields open, and also to correct the misapprehension as to the drudgery of the nurses' life; putting it up to the community that it is necessary for them to help and that it is their problem and that they should encourage their daughters to go in training; to encourage endowments and community backing for nurses' schools; that by making the training more valuable rather than lowering of standards, is in the opinion of the Nurses' Association the better way of attracting young women.

''Until within the last two years it has not been customary for nurses' schools to advertise. All schools are doing it today, and in the opinion of many people, the fact that we have always had a smaller number of applicants in the Spring, and also the fact of a general tendency for a more stable condition throughout the country, makes us feel that, with the coming of Fall and Winter, we will see a good deal of improvement in conditions

The above suggestions, if properly carried out, will have a tendency to remedy the shortage in nursing schools.''

Of the three replies received to the letter sent to members of the committee, one says that among the many things we ought to work for are the better records, and more autopsies in our hospitals.

In regard to nurses, this member states that in his opinion if a woman cannot be taught nursing in two years, she canot be taught it in twenty years.

Another member says: ''I have nothing to offer in reply to your letter, except what you are familiar with in regard to standardization, but in regard to the nurses, if one cannot learn the fundamentals and practical branches of nursing in two years in a well regulated hospital, she is not capable of being an R. N.''

The third reply received suggested more beds to be provided for in our municipal hospitals for the use of people of ordinary means. The writer indicated that many people occupied charity beds and wards to whom such an experience was humiliating and worked against their recovery. He further says there should be in each county seat a small hospital equipped with x-ray, laboratory, suitable instruments and proper nursing. He further states that our Association should co-operate with the A. M. A., in bringing up all hospitals to the same standard. He further says this association must provide some sytem of classification or inspection to see that within its bounds the work done in its hospitals is done properly and by men well qualified. He thinks if a nurse is of more than the average intelligence, two years is sufficient, but doesn't recommend two years, but suggests that upon a return to normal condition more women take up nursing.

Another physician believes that in all general hospitals there should be a Neuro-Psychiatric ward for treatment of nervous and mental disease in their incipiency.

To summarize:

First—To make suggestions for improving the hospital situation in Tennessee is a pretty big and unsatisfactory undertaking and it will take time to properly solve the related problems, but we would would suggest that each hospital standardize as far as possible along progressive lines in keeping with the idea fostered by the American College of Surgeons.

Second—All possible effort should be put forth for better case historiees and permanent records.

Third—Have frequent conferences of the whole staff in each hospital at least once a month.

Fourth—Educate the laity as to the value of autopsies and complete records of same.

Fifth—Complete bacteriological and pathological laboratories and also a complete x-ray outfit should be maintained in every hospital.

Sixth—Training Schools for nurses which will graduate them in two years and qualify them for adequate service and better supply the demand for same.

Respectfully submitted,

W. Scott Farner, Chairman.
H. L. Fancher.
J. P. Tillery.
J. P. Taylor.

## SOME OBLIGATIONS OF THOSE WHO PRACTICE OBSTETRICS.

By J. G. Eblen, M. D., Lenoir City.

Ever since Adam and Eve made love in the Garden of Eden, and Cain and Able made their advent into an unsympthetic world, establishing beyond peradventure by their unrighteous conduct the doctrine of "the total depravity" of the human race, the study of obstetrics has merited, but has received the serious attention of far too few of the most scientific medical men, so says Dr. Quillman of Atlanta. As we compare the wonderful progress in all branches in modern medicine, surgery, internal and preventative medicine, we note that there is a conspicuous lack of obstetrical improvement. In the twentieth century of the year of our Lord, in the most civilized nation on the globe, statistics show, grouping all women of child-bearing age together, that tuberculosis alone is more deadly than childbirth. In the year 1915 according to statistics furnished at Washington, among women between the ages of 15 and 45 years, there were 26,200 deaths from tuberculosis, 11,134 from childbirth, showing that except for tuberculosis, childbirth took the lead.

Statistics show that out of every 1,000 babies born into the world, 172 died; that out of an annual birth-rate of two and one-half millions 250,000, or one out of every eight, die before they reach the first year; or to impress it more graphically, a man seventy years old stands a better chance to celebrate his seventy-first birthday than a new born babe has to reach its first birthday.

When statistics tell us that 30 per cent of the cases of blindness admitted to the State institutions have lost forever the light of the day through the lack of proper precautions at the time of birth; when various nerve disorders, and even epilepsy in a number of infants who survive, are caused through neglect of the proper care of the child, is it not high time that we, as general practitioners, who do more or less obstetrical work, begin to read papers in our medical associations and discuss more freely our obligations to the mother and the child in order that we may tide them over this much complicated physiological ordeal of life?

May I discuss more freely, or somewhat at length, three obligations that the obstetrician owes to the expectant mother and three obligations he owes to the new born babe, and in so doing I merely mention questions as to diet, bowels, kidneys, exercise, bathing, care of breast, prevention of loss of blood, difficult presentations, etc.

First I would emphasize the obligation of the obstetrician to anticipate and avoid the toxemias of pregnancy. This can be done by eliminating probable foci of infection, by properly regulating the diet, by giving proper care to the kidneys and bowels. Carbohydrate diet, large quantities of water, some alkali, citrate of soda possibly being used more than any other, are all generally indicated during pregnacy.

The second obligation I would emphasize is that of a clean delivery. Dr. Lee says that without doubt the physician carries the greatest danger of infection to the confinement room. So, whether in the hospital or in the home, the physician's obligation is to employ the strictest care. Of course it is impossible for general practitioners who practice in the country towns and in the country to get hospital accommodations. So the best we can do sometimes in some homes is very bad indeed, but we should ever remember that hot water and soap will go a long way in sterilizing our hands. Dr. Lee again says that with a sterile gown, sterile hands, sterile gloves, sterile instruments, and sterile towels, whether wet or dry, in the hospital, or in the home, and with aseptic and antiseptic precautions, all of which can not be too strongly emphasized, and yet which, in part at least, is all too frequently neglected, the expectant mother may be given the benefit of at least a clean delivery.

The third obligation I would emphasize is that of a painless delivery. Oh, if we men had to have babies wouldn't we grunt! If we men had to have babies no doubt Caesereian section would be practiced a great deal more than it is at the present day. Of course, I do not think that all women can be delivered without pain, but it is our obligation to minimize the horrible pains that many women have to bear during confinement. Among the many remedies that the physician possesses that relieve the pains of labor are, "twilight sleep" in selected cases; the judicious employment of morphine hyoscin, scopalamine, ether, chloroform, or Nitrous-Oxide, according to individual indications. A state of analgesia can be produced, unnecessary suffering relieved, and the agonizing pain frequently experienced at the completion of the second stage of labor be entirely avoided.

I wish to emphasize three obligations that the physician owes to the new born babe. First, proper care of the eyes. It is the law in this State which requires the physician to drop one or two drops of a one per cent solution of nitrate of silver in each eye of the new born, yet it is claimed that this is being neglected by a few of our profession.

Second, I mention the proper care of the navel. DeLee recently advocates cutting the cord short and placing a sterile dressing over it. But the method which is practiced by most all physicians, and most uniformly used is to tie the cord about two and one-half inches from the umbilicus and place a sterile dressing over this and wrap with a sterile bandage, allowing nothing to come in contact with the cut end of the cord except the sterile dressing and directing the ligated end toward the babie's chin on its abdomen under the abdominal binder. Some physicians paint the cut end of the cord with iodine which, no doubt, minimizes the danger of an infection.

The third obligation that I would emphasize, to see that the baby gets its proper food—its mother milk. Statistics show that infant mortality in the artificially fed is 15 per cent higher than in the breast fed. By giving the mother proper attention before and after delivery, by seeing that she gets ample sleep, food, rest and as little work as possible, and educate her to give her baby regular and systematic nursing, usually everything will work well. If the efforts to have the mother supply milk for her own child are fruitless, always make an effort to get the milk from another mother. If it is impossible to get a mother's milk, about all I can say in this short paper is to do the best you can.

And now I will mention one more obligation and that applies to male babies alone. I am not a Hebrew, nor the son of a Hebrew, but if we carry out the demands of preventive medicine, all male babies should be circumcised, yet this is not practiced by any general practitioner that I know of.

Now, to recapitulate or summarize the obligations I wish to emphasize: Many general practitioners are not capable of taking care of a lacerated cervix, or perhaps a lacerated perineum, but we can eliminate the toxemias of pregnacy to the fullest extent possible, and we can give a woman a clean delivery by utilizing all of our antiseptic skill, and we can minimize the horrible agonizing pains incident to labor, and when we have done this, and done it well, we have done almost all that can be done and we have met our obligations and our work will show it.

Now as to the baby, it is our whole duty to apply a sufficient amount of one per cent solution of nitrate of silver to get rid of the Neisser infection that he may have come in contact with during that dangerous journey through the birth canal; and it is our obligation to take care of his belly on the outside and to take care of his belly on the inside and to circumcise the males and when he grows up to be a man he will say "Old 'Doc' was a good one."

Editor's Note.—Dr. Eblen failed to mention one important obligation, namely, to file birth certificates for all the babies born.

## BOOK REVIEW

**Traumatic Surgery.** By Jno. J. Moorehead, M. D. F. A. C. S., Professor of Surgery and Director Department of Traumatic Surgery, New York Post Graduate Medical School and Hospital. Second Edition, entirely reset. W. B. Saunders Company, Philadelphia. Cloth $9.00.

The first edition of Dr. Moorehead's very splendid work appeared about four years ago, since which time he was engaged for a considerable period in service with the American Expeditionary Forces in France. The necessity for a second edition as soon as it could possibly be pro duced indicates that this book is highly valued by the surgeons of the country. In examining the book one is at once impressed with the quality of its illustrations and upon reading those parts of the text to which any selected illustrations apply one is impressed with their value and with the clearness with which their purpose is accomplished. While Moorehead's Traumatic Surgery is a work to be desired by any surgeon, it is one which will be found especially valuable by the industrial surgeon and by the physicians who is called upon from time to time to perform emergency surgery. The scope of this work is far greater than is indicated by its title, inasmcch as it deals not only with traumatisms and their treatment but also includes general minor surgery. The revision has been very thorough indeed and this second edition carries all that is best of surgical thought based upon the experience of the period which has intervened since the appearance of the original edition.

**Practical Chemical Analysis of Blood.** A book designed as a brief survey of this subject for physicians and laboratory yorkers.. By Victor Carl Meyers, M. A., Ph. D., Professor of Pathological Chemistry in the New York Post-Graduate Medical School and Hospital. Illustrated.

C. V. Mosby Company, St. Louis, 1921.

This small volume of 120 pages is very timely in that the author presents a practical discussion of the various chemical constituents of the blood. The contents of the book is largely a compilation of the series of articles on "Chemical Changes in the Blood in Disease" by the same author that appeared during the past year in the Journal of Laboratory and Clinical Medicine. To these has been added a somewhat fuller discussion of the practical interpretation of blood chemical findings, making it a very useful volume for the busy practitioner, who wants a reliable, but not a tiresome resume of the question. The laboratory part is concise. It includes the directions for making all of the practical blood chemical determinations, also a few urine determinations that are of importance in connection with blood chemistry.—H. S.

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# EDITORIALS

## GOOD MEETINGS—A GOOD SIGN

The meetings of the various sectional societies which were held during the month of May were all well attended and much enthusiasm was shown in all phases of organizational work. The scientific programs at all of these meetings were full and the discussions were marked with all of the old-time spirit and interest that once was evident in all Tennessee medical societies. There were many indications at the last annual meeting of the Tennessee State Medical Association that its members are going to revive their interest in medical organization and get back into the old paths of work and scientific effort which were, to some extent, deserted during the War and during the time that has since passed.

We reported last month on the meeting of the Middle Tennessee Medical Association, held at Springfield, which was very much like the meetings that this fine old society was noted for throughout a long term of years before the whole world was upset by the War.

The West Tennessee Medical and Surgical Association had its 30th annual meeting at Paris, on May 12 and 13. A big crowd was on hand and more than twenty-five scientific papers were presented and discussed. The President, Dr. W. T. Black, chose "Cancer" as the subject of his presidential address and is said to have made a splendid presentation of this most important subject. A very pleasing feature of the meeting was the presentation of a gift to Dr. I. A. McSwain, who has been secretary of the West Tennessee Association ever since it was organized, this gift being in the nature of a token of esteem in which Dr. McSwain is held by the doctors of Tennessee and also an expression of the gratitude that is felt by the members of the Association for his splendid service in its behalf. Officers were elected for the ensuing year as follows: President, Dr. C. H. Johnston, Lexington; Vice-Presidents Dr. T. B. Wingo, Martin, and Dr. R. L. Motley, Dyersburg; Secretary-Treasurer, Dr. I. A. McSwain, Paris; Assistant Secretary, Dr. Geo. McSwain, Paris. The next meeting will be held at Jackson, in May, 1922.

The East Tennessee Medical Association held its spring meeting this year at Maryville, and we were told by some of those who were there that there was a lot of the old-time medical spirit on tap. Dr. J. A. McCulloch, President, was in the Chair and Dr. G. Victor Williams was in his place as Secretary. The Blount County medical faculty, which has grown in numbers and in other ways in the last few years, provided fine entertainment for their guests, including a banquet at Montvale Springs. There were forty-one papers on the program.

The new officers are: President, Dr. E. C. Anderson, Chattanooga; Vice-Presidents, Dr. E. C. Kimbrough, Madisonville and Dr. J. W. Wallace, Johnson City; Secretary-Treasurer, Dr. G. Victor Williams, Chattanooga. The fall meeting will be held at Knoxville and the next Spring meeting at Jellico.

The upper Cumberland Medical Society met at Gordonsville, last month with an attendance that reminded the members present of the meetings of this Society in the "days before the War." The Journal has not been advised concerning the officers elected nor as to the next place of meeting.

Casual reports—we get none other these days—of county society meetings indicate that in a number of counties the societies are getting back on a real working basis.

Altogether the signs indicate that medical organizations in Tennessee are once more beginning to function and that the lethargy which has been much in evidence for a long time is being shaken off. This is as it should be, for medical societies are essential to professional and to community welfare.

## AN IMPORTANT COURT DECISION.

We have noted a statement in a Memphis newspaper to the effect that Judge Laughlin, in one of the courts of Shelby County, has decided in a case recently heard in his Court that an employee of an industrial concern who is injured while at work for his employers can not accept settlement from employers on the basis of the law governing workmens compensation and then bring suit against the physician who attended him for alleged malpractice. This is a decision of considerable importance to the medical profession in Tennessee and it is hoped that the higher courts of the State will uphold Judge Laughlin's opinion if the question is carried up on appeal. There can be small doubt, we take it, that the decision will be upheld by the higher courts, for certainly it is right in principle.

It seems that a workman was injured while engaged in his usual employment at some plant in Memphis. He applied or was sent for treatment to a skilled physician. While under treatment, as we are informed, the workman made a definite settlement with his employers absolving them from any further liability in connection with his injury, this settlement having been made under the terms of the workmens compensation law now on the statute books in this state. Then later the gentleman brought suit against his physician for alleged malpractice, thus seeking to make the doctor the "goat" and to get all that might by any possibility be had.

There are several features of the law above referred to that are objectionable from the standpoint of the doctor. The very fact that an injured employee could bring such a suit as that described above shows that the law is in need of improving amendment. The Journal has made a very earnest effort to interest the physicians of the State in this matter during the last six or seven years, but this effort seems to have accomplished very little. The Committee on Social Insurance of the State Medical Association was continued by action of the House of Delegates at the last annual meeting. This committee intends to bring in a very comprehensive report next year. Our members should study the subject in the meantime.

## A DOCTOR NEEDS HELP.

**The little town of Wildersville was visited** by a disastrous fire on the evening of May 13: Dr. Wm. I. Howell lost his home, with all that it contained, his drug store and stock, and his office and all of its furnishings. He had no insurance.

Some of Dr. Howell's friends have written to the Journal, setting forth the above facts and offering the following suggestion:

"Please insert a note in the next Journal appealing to Dr. Howell's fellow members in the Tennessee State Medical Association for small contributions for his benefit. Each one can give him a little help and in this way enable him to start over again. A little contribution from each member will not be missed, but it will greatly help a good man who has suffered a great loss."

Any who wish to respond to this appeal may send their contributions to the Journal, to be forwarded to Dr. Howell, or may send them direct to him at Wildersville, Tennessee.

## THE STATE'S BIRTH RATE

It is reasonable to assume that just as many babies are born for each 1000 population in Tennessee as are born in other Southern states, but the birth statistics which the State Board of Health is able to compile from returns received in the Division of Vital Statistics indicate that same of our neighboring states are producing more babies than is Tennessee. It may not be reasonable to assume that as many births per 1000 population occur in one particular county as in another in Tennessee, but it is undoubtedly true that there are in fact no such real discrepancies as are made to appear in the statistics which have to be published by the State Board of Health. For instance, it will be noted in the table appended that Unicoi county has a birth rate of 38.9 while Shelby county, outside of the City of Memphis, is shown to have a birth rate of only 10.7. East Tennessee appears to be a much more prolific producer of babies than either West or Middle Tennessee on the basis of the vital statistics returns and is probably so in fact, but certainly there can be no good reason for Maury county to show a birth rate of only 18.1 while Marshall has a rate of 25.2; or for Tipton county to present a rate of 15.8 while Decatur has a rate of 29.1. It is evident, on the face of the returns, that Shelby and Maury and Tipton counties are not having all their births registered, while Unicoi, Marshall and Decatur are doing much better in this important work.

It is unfortunate indeed—unfortunate for the State, for the individual county and for the individual child whose birth escapes registration—that so little regard is shown for the law which requires the registration of every birth which occurs in Tennessee. It hurts Tennessee to have it published to the world that the State has a low birth rate; it hurts the individual county worse when its own statistics are published showing that it has a very low birth rate and that the rate for the State is dragged down by the county's indifference toward birth registration; it is a direct and a serious injustice to the individual child when he is deprived of the benefits that he is entitled and which he may be in position to enjoy if his birth be registered, because some one responsible under the law failed to do his duty to his State and to the child concerned.

There are those who contend that the counties in which no large cities are located are largely responsible for Tennessee's low birth rate. This is not true. As a matter of fact, there is not a city in Tennessee in which birth registration is at all complete.

One very remarkable fact which jumps out into the face of one who studies the vital statistical returns in the State is this: The busiest doctors are the doctors who comply best with the law. It is true not only with respect to birth registration, we opine, but it is true with respect to all law. The men who do most in obstetrics, even though they do large practice otherwise, are the men who send in birth certificates for all children whose births they attend. Certainly it is as much trouble for them to report a birth as it is for the fellow who does half as much practice.

There were registered in Tennessee in 1920 the births of 50,904 babies born alive. The stillbirths recorded as births numbered 2,254. There was some improvement shown in birth registration in most counties in 1920 as compared with 1919, but in some counties there was a woeful falling off in birth registration.

The following table shows the number of births by color and sex and the number of stillbirths for each county and city, as well as the birth rate.

NUMBER OF BIRTHS

| County | White Male | White Female | Colored Male | Colored Female | Other Races | Total Births | Birth Rate | Still-Births |
|---|---|---|---|---|---|---|---|---|
| Anderson | 242 | 251 | 3 | 3 | -- | 499 | 27.2 | 15 |
| Bedford | 207 | 198 | 36 | 45 | -- | 486 | 22.3 | 16 |
| Benton | 135 | 123 | 2 | 2 | -- | 262 | 21.8 | 5 |
| Bledose | 62 | 54 | 1 | 3 | -- | 120 | 16.6 | 1 |
| Blount | 369 | 378 | 22 | 21 | -- | 790 | 27.6 | 23 |
| Bradley | 238 | 235 | 24 | 20 | -- | 517 | 27.7 | 21 |
| Campbell | 334 | 321 | 8 | 4 | -- | 667 | 23.6 | 38 |
| Cannon | 112 | 106 | 0 | 48 | -- | 538 | 22.0 | 17 |
| Carroll | 226 | 210 | 54 | 7 | -- | 648 | 31.8 | 31 |
| Carter | 341 | 329 | 7 | 10 | -- | 228 | 22.4 | 7 |
| Cheatham | 120 | 86 | 12 | 12 | -- | 236 | 24.2 | 8 |
| Chester | 114 | 87 | 23 | 8 | -- | 606 | 26.0 | 16 |
| Claiborne | 303 | 288 | 7 | 7 | -- | 197 | 21.3 | 4 |
| Clay | 98 | 92 | 0 | 9 | -- | 678 | 32.6 | 19 |
| Cocke | 321 | 339 | 9 | 11 | -- | 331 | 19.0 | 13 |
| Coffee | 155 | 154 | 11 | 21 | -- | 424 | 24.3 | 31 |
| Crockett | 183 | 184 | 36 | 0 | -- | 248 | 24.5 | 14 |
| Cumberland | 111 | 136 | 1 | 39 | -- | 744 | 15.0 | 20 |
| *Daxidson | 357 | 315 | 33 | 8 | -- | 297 | 29.1 | 11 |
| Decatur | 144 | 134 | 11 | 2 | -- | 349 | 22.6 | 15 |
| DeKalb | 186 | 159 | 2 | 20 | -- | 468 | 24.1 | 11 |
| Dickson | 214 | 212 | 22 | 38 | -- | 668 | 22.2 | 33 |

_Exclusive of City of Nashville.

| County | White Male | White Female | Colored Male | Colored Female | Other Races | Total Births | Birth Rate | Still-Births |
|---|---|---|---|---|---|---|---|---|
| Dyer | 309 | 286 | 35 | 224 | -- | 650 | 20.6 | 32 |
| Fayette | 81 | 63 | 282 | 0 | -- | 130 | 12.3 | 8 |
| Fentress | 63 | 66 | 1 | 18 | -- | 321 | 15.5 | 14 |
| Gibson | 433 | 409 | 106 | 103 | -- | 1051 | 24,2 | 44 |
| Giles | 262 | 262 | 114 | 115 | -- | 753 | 24.2 | 48 |
| Grainger | 194 | 161 | 6 | 3 | -- | 364 | 27.2 | 7 |
| Greene | 405 | 386 | 12 | 14 | -- | 817 | 24.9 | 41 |
| Grundy | 92 | 89 | 0 | 2 | -- | 183 | 18.7 | 12 |
| Hamblen | 165 | 141 | 22 | 19 | -- | 347 | 23.0 | 9 |
| **Hamilton | 603 | 570 | 52 | 39 | -- | 1264 | 21.7 | 68 |
| Hancock | 136 | 131 | 3 | 4 | -- | 274 | 26.2 | 10 |
| Hardeman | 124 | 128 | 61 | 65 | -- | 378 | 16.9 | 24 |
| Hardin | 194 | 167 | 27 | 10 | -- | 398 | 23.0 | 15 |
| Hawkins | 318 | 292 | 7 | 8 | -- | 625 | 27.2 | 35 |
| Haywood | 70 | 70 | 144 | 136 | -- | 420 | 16.5 | 21 |
| Henderson | 227 | 211 | 18 | 17 | -- | 473 | 25.6 | 17 |
| Henry | 212 | 178 | 45 | 46 | -- | 481 | 17.7 | 19 |
| Hickman | 199 | 168 | 6 | 9 | -- | 382 | 23.5 | 15 |
| Houston | 63 | 64 | 16 | 5 | -- | 148 | 23.8 | 6 |
| Humphreys | 199 | 154 | 14 | 8 | -- | 375 | 27.7 | 18 |
| Jackson | 230 | 188 | 7 | 4 | -- | 429 | 28.7 | 15 |
| Jefferson | 195 | 189 | 14 | 9 | -- | 407 | 23.0 | 15 |
| Johnson | 205 | 166 | 3 | 3 | -- | 377 | 30.8 | 15 |
| ***Knox | 327 | 309 | 9 | 8 | -- | 653 | 18.6 | 24 |
| Lake | 48 | 66 | 20 | 16 | -- | 150 | 16.5 | 5 |
| Lauderdale | 157 | 135 | 90 | 80 | -- | 462 | 21.4 | 27 |
| Lawrence | 291 | 232 | 12 | 7 | -- | 542 | 22.9 | 18 |
| Lewis | 68 | 61 | 7 | 7 | -- | 143 | 25.0 | 1 |
| Lincoln | 237 | 227 | 51 | 50 | -- | 565 | 21.9 | 19 |
| Loudon | 237 | 227 | 51 | 4 | -- | 338 | 20.7 | 8 |
| McMinn | 368 | 311 | 19 | 16 | -- | 714 | 28.4 | 31 |
| McNairy | 239 | 193 | 17 | 12 | -- | 461 | 25.1 | 19 |
| Macon | 153 | 144 | 5 | 6 | -- | 308 | 20.6 | 9 |
| ‡Madison | 159 | 129 | 106 | 109 | -- | 503 | 20.1 | 17 |
| Marion | 165 | 161 | 20 | 16 | -- | 362 | 20.8 | 19 |
| Marshall | 195 | 172 | 37 | 34 | -- | 438 | 25.2 | 15 |
| Maury | 241 | 227 | 92 | 81 | -- | 641 | 18.1 | 20 |
| Meigs | 66 | 65 | 6 | 3 | -- | 140 | 20.0 | 4 |
| Monroe | 321 | 247 | 14 | 17 | -- | 599 | 27.1 | 28 |
| Montgomery | 249 | 243 | 91 | 94 | -- | 677 | 20.9 | 26 |
| Moore | 65 | 45 | 5 | 6 | -- | 121 | 26.9 | 2 |
| Morgan | 227 | 188 | 1 | 1 | -- | 417 | 31.3 | 16 |
| Obion | 327 | 233 | 36 | 39 | -- | 634 | 22.3 | 31 |
| Overton | 239 | 217 | 1 | 2 | -- | 459 | 26.0 | 24 |
| Perry | 101 | 99 | 5 | 2 | -- | 207 | 26.6 | 9 |
| Pickett | 78 | 69 | 0 | 0 | -- | 147 | 28.2 | 4 |
| Polk | 226 | 205 | 0 | 0 | -- | 431 | 30.2 | 14 |
| Putnam | 278 | 273 | 3 | 4 | -- | 558 | 25.1 | 17 |
| Rhea | 177 | 138 | 3 | 5 | -- | 323 | 23.3 | 13 |
| Roane | 314 | 283 | 25 | 13 | -- | 640 | 25.9 | 30 |
| Robertson | 290 | 2 5 | 84 | 64 | -- | 703 | 27.4 | 30 |
| Rutherford | 178 | 172 | 62 | 70 | -- | 482 | 14.5 | 33 |
| Scott | 124 | 137 | 0 | 0 | -- | 261 | 19.4 | 20 |
| Sequatchie | 60 | 47 | 1 | 0 | -- | 108 | 29.7 | 6 |
| Sevier | 299 | 278 | 3 | 4 | -- | 584 | 26.0 | 24 |
| ‡*Shelby | 134 | 164 | 184 | 170 | -- | 652 | 10.7 | 37 |
| Smith | 236 | 224 | 35 | 16 | -- | 511 | 29.8 | 20 |
| Stewart | 161 | 151 | 13 | 12 | -- | 337 | 22.9 | 20 |
| Sullivan | 336 | 343 | 12 | 6 | -- | 697 | 19.2 | 24 |

**Exclusive of City of Chattanooga.

***Exclusive of City of Knoxville.

‡Exclusive of City of Jackson.

*‡Exclusive of the City of Memphis.

| County | White Male | White Female | Colored Male | Colored Female | Other Races | Total Births | Birth Rate | Still-Births |
|---|---|---|---|---|---|---|---|---|
| Sumner | 354 | 277 | 46 | 36 | -- | 713 | 25.7 | 23 |
| Tipton | 153 | 155 | 91 | 80 | -- | 479 | 15.8 | 19 |
| Trousdale | 67 | 35 | 15 | 16 | -- | 133 | 22.1 | 4 |
| Unicoi | 198 | 196 | 0 | 0 | -- | 394 | 38.9 | 22 |
| Union | 122 | 125 | 0 | 0 | -- | 247 | 21.2 | 12 |
| Van Buren | 40 | 35 | 3 | 1 | -- | 79 | 30.1 | 1 |
| Warren | 187 | 196 | 12 | 16 | -- | 411 | 23.7 | 22 |
| Washington | 419 | 362 | 34 | 37 | -- | 852 | 25.0 | 49 |
| Wayne | 145 | 120 | 3 | 4 | -- | 272 | 21.1 | 14 |
| Weakley | 291 | 319 | 20 | 10 | -- | 640 | 20.6 | 27 |
| White | 216 | 256 | 20 | 21 | -- | 513 | 32.6 | 29 |
| Williamson | 192 | 162 | 46 | 48 | -- | 448 | 19.1 | 15 |
| Wilson | 229 | 207 | 54 | 59 | -- | 549 | 20.9 | 29 |
| Excluding Cties | 19627 | 18126 | 2746 | 2503 | -- | 43002 | -- | 1811 |
| Nashville | 913 | 883 | 273 | 263 | 1 | 2350 | 19.8 | 135 |
| Chattanooga | 420 | 370 | 136 | 139 | -- | 1065 | 18.3 | 57 |
| Knoxville | 767 | 708 | 36 | 37 | -- | 1548 | 19.8 | 89 |
| Jackson | 146 | 128 | 55 | 74 | -- | 403 | 21.3 | 24 |
| Memphis | 835 | 870 | 428 | 402 | -- | 2535 | 15.6 | 138 |
| Total, Cities | 3099 | 2959 | 928 | 916 | 1 | 7901 | -- | 2254 |
| Grand Total | 22726 | 21085 | 3674 | 3419 | 1 | 50904 | 21.7 | 2254 |

## SHORTAGE IN PRESCRIPTIONS.

It is not believed that many druggists in Tennessee are guilty of the practice referred to in the letter which is printed below, but it may be of some benefit to the readers of the Journal to know that their prescriptions may not always be filled as written.

Dr. Miller's complaint is the second of its kind that has come to this office. Some time ago a doctor friend told us that he had discovered that a certain druggist had been making it a habit of cutting three-ounce prescriptions to two ounces and four-ounce prescriptions to three. It may be well to do a little "checking up" in some places.

Dr. Miller's letter is as follows:

Dr. Olin West, 5-21-21
Nashville, Tenn.

Dear Dr. West:

For some time it has occurred to me that it might be a good matter for you to call the attention of the physicians to shortage in filling prescriptions for morphine. I dare say that few physicians who prescribe morphine tablets take the trouble to ascertain if the prescription was filled in full. I do not often prescribe morphine, but in the last several years I have thought several times that there was a shortage of one or more tablets in filling the prescription.

Recently I had a patient with an injury involving the nerves of the leg, and causing great pain while the repairing process was going on, necessitating the use of some morphine tablets. In the first prescription of twenty small tablets, it appeared from the report of the family, when I first checked it up, that there were four tablets short. One member of the family admitted dropping one, and was not sure that such fate had not fallen some of the four short. The prescription was duplicated for twenty, but only ten were supplied, but the family assumed that I ordered only ten. I went to the druggist to look at the prescription, to see if I had ordered ten instead of twenty as I had intended to order, and as my stub showed, and found that I had ordered twenty, but the druggist claimed ten was all he had, and would fill the others as soon as he could get same from the wholesale house.

It would be a good plan for the doctors to watch this matter, as patients do not always know how many have been ordered, and can not know if the prescription has been filled in full or in part only.

Yours truly, S. R. Miller.

## ST. THOMAS HOSPITAL CARES FOR EYE, EAR, NOSE AND THROAT PATIENTS.

An innovation at St. Thomas Hospital, Nashville, Tenn., is the establishment of an eye, ear, nose and throat department. The surgeons in charge of this department are Drs. M. M. Cullom and Hilliard Wood. Dr. Robert Sullivan, who had charge of the eye, ear, nose and throat service of a hospital unit overseas, is assistant surgeon on the service of Dr. Wood; and Dr. Frederick E. Hasty who has just finished as house surgeon a two years service on the house staff of the Manhattan Tye and Ear Hospital, is assistant surgeon on the service of Dr. Cullom.

The department is, in effect, an eye, ear, nose and throat hospital within the organization of St. Thomas Hospital. One entire floor is given up to eye, ear, nose and throat patients. A graduate nurse is in charge with a corps of assistants. One of the interns who expects to devote himself to that work is assigned to that service. Two specially equipped operating rooms are assigned to the surgeons who have charge of the department, and they are given a free hand to furnish the rooms with whatever equipment they desire. There are special operating tables for bronchoscopic work, operating chairs, extension stands for the use of reflected light, a dark room for transillumination and ophthalmoscopic work, a special room for reception and examination of patients, and in fact all the conveniences and aids to the refinement of technic that can be found in any eye, ear, nose and throat hospital.

Why does the hospital management go to this trouble and expense to equip a hospital within a hospital? First, the importance of the work of the eye, ear, nose and throat surgeon is rapidly growing. The theory of focal infection has opened up new vistas and has brought the work of the nose and throat surgeon in contact with every field of medicine. This is sufficient reason why the work of the eye, ear, nose and throat surgeon should receive every favorable consideration; but there are other considerations. The staff of St. Thomas are live, progressive men and they are constantly striving to keep abreast of advances in the field of medicine. They know that favorable working conditions in a hospital are an inspiration and stimulate men to their best efforts. This is especially true of the work of the eye, ear, nose and throat specialists. Their work is delicate and after-treatment is of great importance. A brilliant operation that promises to restore sight to a blind eye can be easily ruined by lack of attention to details. What the eye, ear, nose and throat surgeon needs is a corps of trained assistants in the operating room where everything goes with smooth and clocklike precision, due to intelligent teamwork. A need of equal importance is a specially trained intern, with a corps of nurses who have had special training to carry out the after-treatment. How different is the result that usually attends when patients are scattered haphazard through a general hospital. They are under the care of nurses and interns who have had no training in the care of eye, ear, nose and throat patients, and consequently know nothing about the delicate procedures necessary to a successful after-treatment of such cases. But what is more, they have no interest in such work, and what they do is for the most part perfunctory.

Where the patients are segregated on one floor under the charge of a head nurse with special training, with a special intern, a corps of nurses can be given special training and an organization built up that makes for thoroughness and efficiency and gives the department advantages even over a hospital devoted entirely to eye, ear, nose and throat work. The advantages a special department has over a special hospital is the access to the splendidly equipped laboratory which is part and parcel of a modern general hospital. The x-ray department is also a great asset, as well as the carefully worked out system of records. A special hospital unless on a very large scale, could not maintain these departments in the degree of efficiency which is necessary to a general hospital. Then, too, a contact with the keen, alert men who are working in the departments of surgery, medicine, pediatrics, laboratory technic, etc., is decidedly stimulating and broadening and prevents that restricted field of vision which is the danger to workers who come in contact with men of their own line.

Recognizing the impossibility of getting service in a general hospital as ordinarily conducted, the hospital management has spared no pains or expense to equip this department in the most satisfactory manner. The advantages which the hospital expects to derive are a broader training for its internes and nurses, and more efficient and highly specialized service for its patients. In other words, the department is an effort to bring the hospital that much nearer the ideal standard of efficient service.

Partly because of lack of hospital facilities and parly because of lack of education on the part of the public, many operations of this character have been performed in the homes of the patients and the physicians' offices. Needless to say, under such conditions it is impossible to maintain the chain of asepsics such as can be maintained in a well appointed hospital. There is a certain risk, too, in moving general anesthetic cases, as is necessary when operations are performed in the physicians' offices. The public is beginnig to learn what the physician has always known, that the best and most favorable conditions with which operative cases can be surrounded are not too good.

The results to be attained are too important to allow any considerations of economy to stand in the way; and whatever aids science can offer, the hospital management feel it their duty to take advantage of.—The Modern Hospital.

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# TRACHOMA AND FOLLICULOSIS.*

By E. C. Ellett, M. D., Memphis.

The subject of Trachoma and especially the diagnosis of trachoma, and its differentiation from follicular conjunctivieis, or folliculosis, to use a single word, has been thrust upon us rather forcibly by the activities of the U. S. P. H. Service, and the differences of opinion that have arisen between its representatives and other physicians. The question is coming up in many places and its importance seems to justify presenting it for your consideration.

The situation in many communities is that inspections of the schools have resulted in the finding among the children of a good many cases of what some call trachoma, and which others call folliculosis. It has happened that the U. S. P. H. S. Inspectors have usually been the ones to make the diagnosis of trachoma, to which many practicing ophthalmologists have not agreed. In one locality 60 cases were so diagnosed among 100 children. The gravity of the subject hinges on the fact that trachoma is a communicable and destructive disease, and the children said to suffer from it are taken from school and subjected to an operation, not a capital operation, but one necessitating general anesthesia.

In the Journal of this Association for January, we read that a large number of cases of trachoma have been found by field workers of the State Board of Health in Middle Tennessee. The diagnosis was confirmed by an officer of the U. S. P. H. Service. Then follows a hectic appeal to standardize the diagnosis so that even the doctor of ordinary attainment could be enabled to tell trachoma when he sees it. In addition to its other shortcomings, that editorial is responsible for this paper.

If the writer of that editorial will consider the difficulties that attend the diagnosis of small pox, yellow fever, scarlet fever, and other diseases whose specific cause is not well known, not to speak of conditions like syphilis, tuberculosis and a host of medical and surgical conditions in which there would appear to be less excuse for an error, he will realize how hard it would be to lay down rules for the recognition of a disease which has no specific cause, and, in the early stages, no single pathognomonic symptom. The U. S. P. H. S. Inspectors are credited with less hesitation than most of us in making a positive diagnosis, but this is what one of them says: "Like small pox and some other communicable diseases of which the etiology is unknown, the diagnosis is a matter of personal opinion, based on the character and amount of experience which the observer may have enjoyed with respect to the disease," (McMullen, Journal A. M. A., 10-23-20). After narrating the points of difference between the two conditions, Fuchs (Textbook, page 170) says: "But these characteristics are sometimes so obscured that even experts cannot, in many cases, make the diagnosis with certainty, and the subsequent course of the disease alone affords the desired information."

The points of similarity between trachoma and folliculosis, in a very general way, are that both are inflammations of the conjunctiva, characterized by the presence of small accumulations of lymphoid tissue, which constitue the granulations or follicles. The two differ in that folliculosis is a mild, self-limited, non-contagious disease, probably the reaction of one of a number of irritants, not attended by subjective symptoms, and dissappears, leaving no trace, while trachoma is a serious, chronic, sight destroying, contagious disease, attended with many and distressing subjective symptoms, and which heals by the conversion of the granulations and hypertrophic conjunctiva into cicatricial tissue, leaving permanent scars and often troublesome sequelae.

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*Read at the Annual Meeting of the Tennessee State Medical Association at Nashville, Apr. 1920.

If it was all as easy as that sounds, then the longings of our Journal would be satisfied.

There is another point which is very important, and that is the age incidence of the two diseases. Folliculosis is a disease of childhood. It has a certain relation to enlarged tonsils and adenoids, and is prevalent at the ages when adenoids are most commonly seen. It is very unusual to see it after the seventeenth or eighteenth year. Trachoma, on the other hand, is rare in children, at least that is my observation, and is much more common in adults. At any rate, it shows no such predilection for childhood as does folliculosis, but when prevalent in a community, should be found in the adults, and not exclusively in the children. The importance of this point may be illustrated by a quotation from H. D. Bruns (Journal A. M. A., 10-23-20), "Unless this disease endemic among the children has been of brief duration or unless extra-ordinaray precautions have been taken, examination of the adults of such a community must show the scars and lesions of trachoma, if that were the disease; and that is the point on which all testimony ought to be brought, and not on the almost impossible question of the differential diagnosis."

Minute differences are described between the appearance of the granulations in the two diseases. Those in folliculosis are smaller, more sharply defined, and arranged in regular rows. More important it seems to me, is the fact that in trachoma we have an accompanying hypertrophy of the conjunctiva, and the granulations are more numerous on the upper lid and upper fornix, while in folliculosis there is little inflammation, and the granulations are almost wholly in the lower fornix.

The difference in the subjective symptoms is very marked. In folliculosis there are no subjective symptoms, or symptoms of the mildest character. The condition is discovered accidentally, in the course of a routine school inspection, while in trachoma, to quote the excellent and accurate description of McMullen of the P. H. S. (Journal A. M. A., 10-23-20), "The patient complains of sensitiveness to light, lachrymation, more or less pain, disturbance of vision and sticking together of the lids in the early morning. The palpebral fissure is narrower than usual, and there is a frowning expression, or wrinkling of the skin of the forehead, due to photophobia. The upper lid often droops, ----secretion is noted ----. These conditions cause a suspicion of trachoma even when viewed at a distance."

I have been struck in school inspections with the difference in the looks of the conjunctivae in the children of different ages. In the classes of children from 8 to 10, the eyes are often a little red and show the signs of slight conjunctival inflammation, while in the children from 15 to 18 they are almost uniformly free from any inflammatory signs. It is at the former age that folliculosis is common.

We have then certain very general symptoms which need no special training for their appreciation, and which might be produced in the familiar deadly parallel, as follows (slide). I might say that I have used this scheme in teaching for fifteen years without feeling the need of changing it in any way.

One enthusiastic admirer of the work of the U. S. P. H. S. Inspectors, in speaking of the work done in Kentucky, says it does not matter whether the cases are folliculosis or trachoma, they are getting practical results. "Dr. ————is relieving all of these patients, practically, on whom he has operated." That would be, to me, prima facie evidence that he is not dealing with trachoma, but with some much less serious affection. To quote Dr. Hiram Woods, "To my mind, the large percentage of quick cures is very suggestive of a large number of errors in the diagnosis of trachoma."

In regard to the pathology, there is no specific body or germ that we can find in the secretions of the tissues that aid us in the diagnosis. The so-called trachoma bodies are not regarded as sufficiently characteristic to be diagnostic. According to Fuchs, "Even in the histological structure, no thorough going distinction can be found between follicles and trachomatous granulations." So why weary you with plasma cells and epithelioid cells and capsules, true and false? It is confusing enough as it is.

The situation can be summed up about like this. When you find in a school inspection or other routine examination, in a child who has no subjective ocular symptoms, granulations on the conjunctiva, it is more apt to be folliculosis than trachoma. If the granulations are in the lower lid, and there are few other cases, and those in children of the same age, it is still apt to be folliculosis. Subjective symptoms, granulations on the upper lid and upper fornix, the presence of a similar disease in older members of the family or community, especially the scars indicative of a later stage of trachoma in the adults, require that the case should be viewed with suspicion, and withdrawal from school, and the observation of the effects of a mild astringent solution (Sulphate of zinc 1 gr. to the oz.), and plenty of fresh air, will aid in the diagnosis. Until this rests on better grounds than the finding of a few conjunctival granulations, we are not justified in stampeding a community, erecting trachoma hospitals, and subjecting children to operative procedures suffieiently severe to necessitate general anesthesia.

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## DISCUSSION OF THE PAPER OF DR. ELLETT.

Dr. Olin West, Nashville: I am exceedingly interested in this subject, which I consider one of the most important that can be brought to the attention of this Association, and especially to the members of the Association who live east of Nashville. I plead guilty to being the author of the editorial referred to in the Journal, and if I knew how to do it, I would make my appeal for the standardization of the diagnosis of Trachoma even more vivid, or "hectic," if you please, than it appeared to be in that editorial. The facts about this disease in this state are that the field workers of the State Board of Health have been finding for several years a number of cases of something the matter with the eyes of a large number of persons. Some of the best specialists we have in the state have diagnosed this something as trachoma, while others of the best specialists in the state have insisted it is not trachoma. However that may be, we of the State Board of Health have found in the field a large number of cases of an eye conditon which, all the information we can get on the subject from reading leads us to believe is trachoma. I do not mean that every case has pannus, nor that every case is typical, as the case thrown upon the screen a moment ago, but I do mean there are hundreds of children, and adults for that matter, with disease of the eyes. Not nearly all of these cases are found in children, as I am afraid some of you might think from the reference made in Dr. Ellett's paper. In many of these cases vision is very sadly interfered with. These milder cases Dr. Ellett seems to believe are practically all cases of folliculosis. We have some that were traced by the contacts. In a relatively large number of instantces we find a child, who has a condition that Dr. Ellett would diagnose as folliculosis, with a sister at home who has unmistakable trachoma, or has a cousin that it visits every two or three weeks that has what is unmistakable trachoma, or, at least a condition that would fit the most classical description of that disease.

Recently, in one county in Middle Tennessee one of the field units of the State Board of Health, in routine work for the examination of school children, has found something more than 200 cases of something the matter with the eyes of the children in these schools. A number of these cases have been followed up and it has been found that some of those mild cases are in direct contact day after day with individuals who have unmistakable trachoma. That fact has gotten us uneasy about the whole situation. We have striven to get all the information we could and have visted institutions under the charge of specialists who have made diagnosis of trachoma a special study. In one institution that comes to my mind there are some sixty odd children in charge of one of our best ophthalmologists, and he unhesitatingly has diagnosed trachoma in every one of those sixty children. This man has had a wide experience with trachoma, and we are compelled to attach some weight to his opinion. On the other hand, the very best men we have here in Nashville have disputed the diagnosis of trachoma in our State Blind School, while some others have upheld that diagnosis. We have become acutely concerned over this situation, and especially in view of the fact that we occasionally find two or more members of a family who can not face the light and whose vision is sadly impaired. A member of one family was not able to get about by herself for eight years, but after she had treatment for trachoma for a few weeks she was able to do her ow n housework. Every member of the family down to the youngest child had what we were convinced was trachoma. If it was not trachoma it was playing the devil with that family, whatever it is, for they were virtually blind.

Another man we have found incidentally in tracing up all these cases was an inmate of the poorhouse. He has been under treatment and is now ready to go to work and make his own living. That is what we find when we trace the connection from these milder cases of trachoma or folliculosis, whatever you call it.

As to the question of responsibility, what must we do about it? The only source of help available to us is the United States Public Health Service, through its Division of Trachoma Prevention, in charge of Dr. John McMullen. There has been for several years in this state a trachoma hospital supported jointly by the United States government and the Tennessee State Board of Health, but the place in which that hospital is located is so far away we could not make its services available to those individuals in Middle Tennessee that have something the matter with their eyes, some of whom at least, have trachoma. The Public Health Service has established a temporary hospital at Carthage, at the request of the State Board of Health in quarters provided by the County Court of Smith County and this hospital is doing splendid work.

Some of our specialists are much more disposed to diagnose trachoma than others. Whatever may be the difficulties attending the diagnosis, there is undoubtedly a very widespread dissemination of some eye disease, some of which, at any rate, gets to be equal to trachoma, if it is not trachoma. What ought to be done about it? Most of these patients are no of that standing in life that will enable them to go to the cities to secure treatment from the best men; consequently we have done what we could with this temporary hospital we have established to give them relief. I am still of the opinion that it is possible to have a better standardization of the diagnosis of trachoma, and that if that can be done it ought to be brought about.

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Dr. G. P. Zirkle, Kingston: Over in our county we have a health unit that is now inspecting schools and they report finding some of these cases. I think they are pronouncing them trachoma.

Last year, in our school house in Kingston, Dr. Roberts and myself made an inspection of the school and we found ten cases that were pronounced trachoma. We sent these cases over to the trachoma hospital; they also made a diagnosis of trachoma. Now we are reviewing the histories of these ten cases. There were seven cases in one family. Originally this one family was two families, and four cases existed in one family; later these two families moved together, and three more cases developed among children that were allowed to mingle with these children every day.

Dr. Ellett told us that folliculosis is not contagious. This disease we have over there is evidently contagious. These children had the disease in different stages. In the children that ily justified in making a diagnosis of folliculosis. A disease that had been in evidence for five or six years was evidently trachoma, and we might have made a diagnosis of trachoma and folliculosis in one family, but I do not think we would have been justified in so doing.

We do not know what the cause is of either one of these diseases. There were two of these cases in one family, and another in another family. In these two families there had been a history of gonorrhea. I never heard anybody advance the idea that an attenuated gonococcus changed morphologically might cause this trouble. I never heard that idea advanced, but it has occurred to me that possibly might be the cause. Just recently this health unit inspected the same school again, and they found two cases that were on the border line. We have Dr. Fly over there with us, and I was talking to him a day or two ago and asked him if he was not going over to the State Society meeting and talk the matter over. He said he was very anxious to go but the press of work would not enable him to attend the meeting. He was undecided as to what he had to deal with. He said he did not know. We have an eye man over there, Dr. Hill, who is a good man. He says that these are not trachoma but are instances of folliculosis.

It seems to me, in the interest of these children who have this trouble that we ought to be of one mind and decide what we are going to do for them. We want them to be relieved. We want to be able to cure them, and I do not know as to whether we are going to wait until a positive diagnosis is made in every case before instituting treatment or not. I do not think we should. We want to keep after this thing and let the diagnosis be what it will. I believe operation really is the best means of curing them. Those cases that were sent to the trachoma hospital showed scar tissue all right, and they appear to be well. They have been away for over a year. I examined their eyes two months ago and there is no evidence of disease in the eyes now.

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have recently been infected, I think we are eas-

Dr. E. L. Bishop, Nashville: As Director of the Bureau of Rural Sanitation of the State Board of Health, I must plead guilty to being one of those responsible for the discovery of the condition to which Dr. West has referred. My excuse for speaking is to give you some idea of the extreme conservation adopted in dealing with the situation.

In our initial survey we examined 1608 children. Two hundred and fifty-two (252) of these children were found to be suffering from what was in most instances tentatively diagnosed trachoma. A few of this number were listed as "suspicious." Since the hospital has been in operation in Smith County, 432 patients with some form of eye trouble have gone through it. Only 130 have been positively diagnosed as trachoma, 128 operations have been performed. You will observe, therefore, that the man in charge of the work is quite conservative. He has turned down a number of cases diagnosed as either trachoma or suspicious trachoma in the initial survey. When you are seeing from 150 to 200 children a day and are trying to discover only the extent of the trouble and not to make an accurate diagnosis, you can see how errors will arise in the initial survey. Before a patient is treated he goes through a careful procedure at the hands of the man in charge of the hospital.

We are finding cases at all ages. I remember particularly one woman of 86, who claims to have had trouble with her eyes for the last thirty years, having been practically blind for the last twenty years. She has had two operations, I believe, one of them for entropion, and is now able to see her way about. In the instance to which Dr. West referred of a certain family in Smith County, the mother has had three operations, two for entropion and a grattage. She has been unable to see for a number of years but was able to walk without being led three weeks after treatment was begun.

If the disease is not trachoma, and if we have not a serious problem to deal with in a great many counties, particularly along the northern border of Tennessee, I am unable to imagine what the trouble really is.

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Dr. S. R. Miller, Knoxville: I am glad there are other counties besides Knox County in which the diagnosis of this disease is doubted. As a trustee of a large industrial school, this disease has given us considerable trouble. Our own specialists, six of them on our own staff, differ among themselves as to a large number of these cases in the matter of diagnosis. Some of them are thoroughly united in saying it is trachoma, others are not. We have had a public health service man there on several occasions and even public health men differ among themselves. They differed very materially in our first examinations as to the number of cases we had. We have had 86 children whose diseases were diagnosed by one of these men, who sesms to be most conservative, and as a medical representative on the board I decided that we should pass on this whatever it is. If it is trachoma, we will try to cure it. If it is anything else, we will try to cure it. We treated these 86 children with splendid results.

We have had a follow-up system for about three years whereby the children are inspected, and now and then children are coming in from the outside who are found to have this suspicious disease. But all of these children and the children associated with them have been pronounced well during the time that this follow-up system has been in operation. We dropped that for two years, had another examination, and found 26 more cases that have since then been stated. Of these 26, almost every one of them were children admitted in the last two years. We traced down a good many of these cases and found there were eye diseases in the homes where these children had come from. I think, gentlemen, if the specialists can not make a diagnosis, and if we find operation stops the course of the disease, and especially in the schools and asylums, we had better carry out that method of treatment and let the specialists keep on working on the diagnosis.

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Dr. Olin West, Nashville: As I intimated in my previous remarks, I feel the responsibility of this problem tremendously. I know as a matter of definite fact that is established beyond any sort of question that we have in a row of counties east of Nashville a very large infection of some kind in the eyes, not only in children, but in older persons. We consider it our duty as a State Board of Health to do everything we possibly can to protect any part of the State from any sort of infectious disease and this disease is in my opinion infectious.

I recall a number of years ago when trachoma began in Kentucky. I got on a horse and rode through the mountains for miles and miles and saw one person after another with eyes shaded from the light and with some disease of those organs—trachoma or not— which incapacitated them. Frequently it was a case of the blind leading the blind. I do not believe we want that sort of situation to develop in Tennessee. It begins to look as if we were almost on the verge of being in that identical fix right now in some of our counties. If I can in any sort of way impress upon the profession of this State the seriousness of this disease as I see it, I believe I will have done some good whether it causes a "stampede" or not. I am perfectly willing to take the responsibility for a "stampede," or whatever you wish to call it, if I can call the attention of the medical profession to the seriousness of the situation, and to the necessity of watching for the condition described, and for the need of getting action on the matter.

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Dr. E. C. Ellett, Memphis, (closing): I have no brief for the United States Public Health

Service. They are capable of fighting their own battles. What I said in my paper has been borne out by what the gentlemen have said, that trachoma is a serious disease. It is a disease that involves the eyes, not the children exclusively, but of adults alike, and if you get a disease in the eyes in any community that affects only children, it is a pretty safe guess that it is not trachoma.

I also stated that folliculosis is a disease without subjective symptoms, and that these people that could not see for eight years, or could not stand a ray of light, in all probability had trachoma.

In certain localities in this country, the trachoma problem is a very serious one. In the southern portion of Illinois there is a place known as "little Egypt," and in this place trachoma is very prevalent. In Egypt, it is stated that 96% of the school children have trachoma. We do not want anything like that in Tennessee. Every child with a few granulations on the lower lid does not need to be anaesthetized and operated on, and even if you do this you will not cure the disease in a week if it is trachoma.

# THE USE OF RADIUM IN NON-MALIGNANT UTERINE BLEEDING.*

By Wm. Sailer Anderson, M. D., Memphis.

Radium was discovered by Madam Currie in 1903. It is extracted commercially from carnotite, pitch-blende and all uranium ores. The principle source of radium is the carnotite ore, which is found in Colorado and Utah. It was first greeted with a good deal of mysticism, but we now have learned to appreciate its true value—not a panacea, but if properly used, one of the greatest therapeutic agents known to the medical world. Over ten years of active use have now passed since the accidental discovery of its therapeutic value, yet it is only during the past few years that the practical methods of treatment have been developed.

It may not be amiss for me to explain some of the essential properties of radium, together with the methods of its application, in order to demonstrate them in the treatment of disease.

Radium element is constantly giving off three types of invisible rays, namely, the **alpha**, **beta**, and **gamma**. The alpha rays are very short, slightly penetrating, with considerable chemical reaction. They are positively charged helium atoms, shot out at the velocity of 12,000 miles per second. The beta rays are more penetrating, these being negative electrons of the same type as the cathode x-rays, and are about 100 times more penetrating than the alpha rays. They have a penetration of several millimetres below the surface, and likewise possess certain chemical properties. The gamma rays are of short wave length and are more penetrating than the alpha rays. These rays, like the x-ray, are a form of radiant energy of the same general nature as light. They are due to the rapid vibration of electrons in the radio element, caused by the high speed beta rays in their escape from the atom.

The treatment of non-malignant uterine hemorrhage, with or without fibro-myomata, is now so well established that we must assume that given a sufficient dose, we can produce a permanent amenorrhoea in women over 30 to 35 years; and that in women under 30, a temporary amenorrhoea can be brought about by careful dosage. The increasing number of cases reported show that small fibromyomata of the uterus will shrink to insignificant size after proper dosage, and my actual experience confirms this.

Several problems present themselves. The first involves the proper selection of cases for radio-therapy; the second concerns the proper methods of application and dosage to bring about these results.

## General Conditions.

There are two types of non-malignant uterine hemorrhages—the periodical type associated with the menses is termed **menorrhagia**; the second occurs at irregular intervals, independent of the regular menstrual flow and is termed **metrorrhagia**. The two conditions may frequently easily be differentiated, or often it is impossible to differentiate the one from the other. Clinically this is not of any importance, for often one may be a degree of the other, but a careful history is of great importance.

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*Read at Annual Meeting of Tennessee State Medical Asociation at Nashville, April, 1921.

## Etiology.

The causes of this type of bleeding are:

1. Functional derangement of the genital organs, no pathology being demonstrable.

2. Diseases of the generative organs, with pathology.

3. Vascular disturbances, the result of chronic nephritic, hepatic, or cardiac disease.

4. Constitutional disease—the result of general anemias.

Functional disturbances of the organs are due to an under- or over-secretion of some of the ductless glands. The action of these endocrines, usually the thyroid or ovary, must always be considered in arriving at a diagnosis. This type is often found in young girls about the age of puberty.

Diseases of the genital organs with pathology accompanied by uterine bleedings are: (1) Hyperplasia, often caused by trauma with its resulting scar tissue. (2) Displacements, as version, flexion, etc., causing a passive congestion. (3) Tumors leading to an obstruction of the circulation of blood and lymph. (4) New growths of the uterus, as myomata and adeno-myomata. (5) Chronic inflammations of the uterus and pelvic organs.

**Diagnosis**—A correct diagnosis of the cause of all uterine bleedings is of the greatest importance. A careful physical and pelvic examination is very necessary. A microscopic examination of the uterine scrapings is very important, where available. Be careful in your diagnosis, for often a favorable prognosis is changed into one of hopelessness by error or delay.

**What are the indications for the use of radium?**—(1) In the essential uterine hemorrhages and hyperplasia of the endometrium and myometrium. (2) Certain selected types of fibrous uteri.

The first type occurs most commonly at the beginning or at the end of the child-bearing period, but also with some frequency at any time during the reproductive period, and includes the conditions usually know as endometritis and metritis. In women over 35, the method of treatment is to exclude malignacy by currettage, if in doubt, and give a large initial dose of radium, say 50 mgrms. for 14 hours namely, 700 mgr. hours, for it is not so important for menstruation to continue. It may be necessary to repeat this dose after a certain length of time in some cases. The woman may have one or two scant periods, but usually she passes into the menopause thereafter. Radium is preferable in this type of cases to the x-ray, for it produces an endarteritis, with a cessation of the flow, whereas the x-ray acts on the ovary, destroying its function. In some cases they can be used jointly if this condition is not to be considered. The symptoms of the change of life are therefore mild after the use of radium, whereas they are often marked after the use of the x-ray. Radium is a very satisfactory therapeutic agent in these cases as well as in cases of fibrous uterus, or small myomata where operation is not indicated, for it is practically devoid of all danger when properly used, and it only necessitates a short interruption in the routine of a person's life. When there is any contra-indication to surgical procedure, as general constitutional or heart disease and haemophilia, it can still be safely applied. It should not, however, be used on patients who give a clinical history or present physical signs of pelvic infection, or pyometritis, nor for those complaining of chronic pelvic pain, for the application of the radium may light up to a severe degree a low grade infection.

In the treatment of young women, especially where the currettage and general treatment has proven of no avail, the dosage is so easily regulated that the desired effect may be produced in many cases without bringing on a complete amenorrhoea, the functioning power of the ovaries not being destroyed. The average dose in this type of cases has been from 100 to 300 mgrm. hours; we attempt to give enough to regulate and control the symptoms and not to stop the menstruation.

In the treatment of fibroids we must be governed by the type of tumor and the age of the patient, as well as many complicating factors. Young women during the child-bearing period with small fibro-myomata should have a myomectomy when possible, especially where desirous of reproduction, for this operation gives more opportunity for subsequent pregnancy than does the use of radium. In the sub-mucous type of fibroid, by reason of its location and composition, often severe bleeding is encountered. Here the endometrium becomes involved, and as radium acts directly on it primarily, it thus causes a cessation in the bleeding, and the fibroid after several months frequently shrinks to an inappreciable size. A run-down anaemic woman may often be given a chance to build up and then surgery may be resorted to later, if there is any indication for the same. In a large number of these cases it is very desirable to bring on the menopause, as these cases often drift into malignancy.

## History of a few cases which will illustrate the use of radium in the type of conditions mentioned.

Case 1.—Miss N., age 44, very pale and anaemic, tires very easily, considerable loss of weight, red blood count, 3,000,000. History of profuse bleeding for the past four months, causing her to stay in the bed for a large amount of her time; being a stenographer, she was unable to keep up with her work. A pelvic examination revealed a boggy uterus, somewhat larger than normal, position normal with no attendant pathology of appendages.

**Diagnosis**—Chronic endometritis with the accompanying symptoms of the menopause. The treatment consisted in inserting 50 mgr. of radium into the uterus for 14 hours. She had only had one scant period thereafter. One year has now elapsed since this treatment and she is now in perfect health, having gained her normal weight; uterus is normal in size and consistency. None of the precipitated signs of the menopause.

**Case 2**—Mrs. B., white, age 38, saleswoman. Mother of two healthy children. Wassermann negative. A history of almost constant bleeding, and, at times, especially when on her feet, assumed the type of a hemorrhage. She had been unable to follow her occupation for the past six months, and was contemplating a hysterectomy. Two doses of 700 mgm. hours, two weeks apart, has completely relieved all symptoms, and she has now been in the best of health for past ten months.

**Diagnosis**—Metritis, and enometritis, with menorrhagia.

**Case 3**—Mrs. S., age 24. Widow, mother of one child. A badly lacerated cervix and perineum had been repaired, the cervix having had a low amputation, still very profuse and prolonged bleeding at her period, lasting 7 to 8 days, which was very prostrating to her.

**Diagnosis**—Hyperplasia of the endometrium. She was given 300 mgrs. hours of radium in the uterus eight months ago. Periods are normal now as to intervals and length.

**Case 4**—Mrs. P., mother of one child sixteen years old; white, age 40. Uterus normal in size; slight tenderness of one tube. She gave a history of having a period lasting for from eight to ten days, then a week probably of rest, and then another flow lasting 7 to 10 days; in fact there was little time when she did not have to wear a napkin.

**Diagnosis**—Chronic endometrititis; uterine hyperplasia with bleeding. Her case was very intractable, but three treatments have given her relief. The first two treatments consisting of 700 mgrs. were given at weekly intervals; last treatment of 500 mgrs. was given six weeks thereafter. Had two scant periods; no flow of any nature now for past three months. Has gained several pounds in weight; is able to do her own work, whereas before she was practically an invalid.

**Case 5**—Kate S., age 35, colored, nullipara Wassermann negative. History of excessive menstrual flow coming on with no regularity. Never free from pain in uterus, unable to do any work. Examination revealed a large, tender uterus about the size of a cocoanut. Appendages normal.

**Diagnosis**—Fibroid uterus, March 1, 1920. 1,000 mgr. hours, intra-uterine. March 18th, second dose of same amount for same time. At the end of two months all flow and pain has subsided. After three months uterus was one half the original size; in six months was normal in size, and all signs of fibroid had disappeared, no flow, no pain.

## CONCLUSIONS.

1. The writer is firmly convinced that radium has a definite field in gynecology.

2. In young women with menorrhagia, in selected cases, it should be used in small amounts for the initial dose.

3. Abdominal myomectomy is preferable to radium in the treatment of cases under 35 years, who have definite fibroids with bleeding.

4. Radium is an ideal form of treatment in these cases over 35 years of age, with a fibrous uterus or where the fibroid is small with bleeding.

5. Hysterectomy should be done where the fibroid has advanced to any great degree of size, unless contra-indicated, because of the possibility of degeneration or malignancy.

6. In all cases of suspected malignancy of the fundus, surgery should be the method of choice, even though uterine scrapings be negative.

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# RADIUM IN GYNECOLOGY.*

By Shields Abernathy, M. D., Memphis.

Although it is a matter of 21 years since the discovery of radium and some 15 years since Robert Abbe, of New York, first applied a piece of radium to a cervix uteri which had been invaded by cancerous growth, the great value of this remedy in gynecology was little known to the medical profession at large until just a few years ago; and even today there are in the profession many who are not acquainted with its virtues, and there are those who regard the words radium and cancer as synonymous, and to whom the idea of radium therapy is somewhat mythical and uncertain. In the early work in radium therapy, its use was confined to a small number of men who had faith in its therapeutic properties and who were fortunate enough to possess or have access to variable quantities of radium, and for this reason the experimental stage, through which every innovation in medicine has to pass, was long drawn-out. And again, the necessary number of years required to prove or disprove its effectiveness, especially in malignant disease, was such that it is only within the past two or three years that its use has gained momentum, and today the literature is teeming with reports of its brilliant results. It is now a proven and generally accepted fact that radium has gained for itself a place in gynecology which is second only to surgical procedures, and in some conditions it has superceded surgical procedures as the method of choice. That its status is definite is no longer questionable in the minds of those who have employed it over a period of years, and it is the consensus of opinion amongst these workers that it does not work in competition to surgery, but that is a most powerful and efficient adjunct.

There are three principal conditions in the domain of gynecology in which the use of radium has produced brilliant results, and it is the purpose of this paper to discuss the status of radium therapy on these conditions.

The first is that fearful scourge which woman-kind is heir to, cancer of the uterus. A careful review of the literature shows that the results of radium therapy in cancer of the fundus have been disappointing, and the end results of surgical interference are so satisfactory that this condition remains, as it was prior to the advent of radium, essentially surgical.

The facts concerning cancer of the cervix uteri as to its frequency and terrific death toll are so appalling in the light of modern medicine and surgery that the appearance of a remedy that both palliates and cures should not only claim the interest of the medical profession and of the laity as well, but should be acclaimed with joy. When one considers that practically 30 per cent of all cancer is cancer of the cervix uteri, and that of all cases of cancer of the cervix less than 8 per cent are operable when they come to the surgeon, and that 8,000 to 9,000 women die of uterine cancer yearly in the United States, one must realize how futile our efforts have been to combat this horrible disease. When Robt. Abbe first applied radium to the cancerous cervix of a woman, and eighteen months later discovered that no signs of the disease were present, to my mind this should go down in history as one of the greatest epoch-making discoveries of all time, for it marked the inception of a procedure which at the present time offers hope, palliation and even cure to what were hopeless victims of a

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terrible disease, and in the future it is to be hoped that a wider knowledge of the effect of radium and improvement of technique and standardization of dosage will bring about results that at the present time exceed our greatest expectations.

For many years the profession had labored in a futile effort to stay the inroads of this disease on womankind and many plans and procedures have been developed, but the somber fact remained that tens of thousands of women died yearly from cancer of the cervix. In 1898 the Wertheim operation was developed and perfected, but this has proven to be a disappointment even in the hands of the most skilled. The primary mortality has been very high and the percentage of recurrence and secondary mortality has been so high and so disappointing that in the hands of the average operator it can not be said that much has been accomplished by its use. The Percy method of cauterizaton has its advocates and no doubt has accomplished something, but the results are likewise disappointing on the whole.

The question now arises, What has radium done and what is it doing to combat this disease which has resisted all efforts at cure? A study of the reports from the clinics in this country and abroad and from individuals working alone is very harmonious and most convincing and the results that are being reported are brilliant and even miraculous.

In a most classical paper appearing in Surgery, Gynecology and Obstetrics, Sept. 1919, Henry H. Janeway, head of the Radium Department, of Memorial Hospital at that time, but only recently deceased, gives us a remarkably concise summary of the work by the principle advocates of radium therapy. It is a noteworthy fact that the results reported by these various workers present a striking uniformity in percentage of cures and improvements. Janeway reports 17 cases of carcinoma of the cervix, 12 of which were clinically cured 3⅓ years to six months after treatment was completed. He also reports four casee of recurrent carcinoma of the cervix, 2 clinically cured 16 and 25 months after treatment and one improved.

From among the numerous other reports I have selected the following few as being the index to the present status of radium in gynecology, not only on account of the number of patients treated, but also on account of the conservatism and precision which marks the work of these men.

The report of Kelly and Burnam gives the results obtained in 213 cases of carcinoma of the cervix treated with radium. Fourteen of these cases were operable. Four of these were treated with radium alone and all are well one or two years after treatment. The other 10 were operated upon and then treated with radium and all were well 6 months to 3 years after the treatment. The value of radium is obvious when one considers that after operation alone there is a recurrence in 75% of all cases and in 60% within a year. One hundred and ninety-nine inoperable cases, including both primary and recurrent growths, were treated. Fifty-three of this group are clinically cured and 109 markedly improved. Of thirty-five of this group all primarily inoperable, three have remained well for 4 years, 2 for 3 years, and 17 for over one year. It will be seen that of 213 with carcinoma of the cervix, 57, 4 operable and 53 inoperable, have been cured. In this summary of their work Kelly and Burnam consider that 25% of their cases have been cured.

The report of Clark, of Philadelphia, is quite significant, for in a series of 100 cases of genital carcinoma treated with radium, 55 were alive and free from symptoms 2 to 30 months after treatment and five patients had gone 22 to 30 months.

In a series of 80 cases suffering from pelvic cancer, Schmitz, of Chicago, reports clinical cures in 35.5% of these patients. Eighty per cent were inoperable and the period after treatment varied from 4 to 24 months. I feel sure however that this high percentage of cures will be lowered probably 1% in the second and third years following treatment.

Another report which carries with it a high degree of assurance and optimism is that by tho Spanish surgeon, Raeaseus, of Madrid, in which he gives in detail his results obtained in radium treatment of 400 cases of uterine cancer extending over a period of 7 years. As far as I am able to learn no one else reports such a high percentage of cures, for he concludes that 70% of his inoperable cases and 95% of cases where the growth was confined to its original site have been cured by radium. He is one who takes the position that cancer of the cervix is no longer a surgical disease, for with its 100% of cures from radium in the early stage and 70% cures in the inoperable stage as compared with the high rate of primary and secondary mortality and recurrences following extensive surgical procedures, he no longer hesitates to treat all cases with radium alone.

In my own work with radium sufficient time has not elapsed for me to determine just what I have accomplished insofar as end results are concerned. My primary results are in line with those reported by many workers. I have seen, however, very extensive inoperable cancerous growths of the cervix undergo the most rapid retrogression, the hemorrhage and foul discharge cease entirely, the patient gain in weight and color, and experience a sense of such well being and comfort that they tell me that they are cured. In my series of some 40 cases to date they have all, with the exception of 4 cases, shown marked and rapid improvement and I trust that as time goes on the proportion of cures will be in direct ratio to the primary improvement. Of the 4 cases that have not done well, 2 were primary growths and 2 were recurrences following hysterectomy and all were in such an advanced stage that they were not acceptable as radium cases, except for the fact that occasionally the most unbelievable response to radium is seen. All of these patients were fully aware of the futility of treatment but were anxious to have it. Of the 2 cases of primary growth, one died about 2 months after treatment was completed, from septic infection which was present when I first saw her. The other three of these four cases do not seem to have been benefitted.

The second condition to which I wish to call your attention is one which does not claim such a great death toll, but in point of importance it is a close second to cancer, as thousands of women are uselessly unsexed yearly by hysterectomy for relief of this condition. I refer to the non-malignant uterine bleedings or menorrhagias, and more particularly to the so-called myopathic bleeding in the extremes of menstrual life. Excessive bleeding in young women, varying from a profuse flow for 5 or 6 days to a continuous flow for as long as 3 weeks, is met with frequently where the cause is not at all apparent. The most careful examination fails to show evidence of disease in the uterus or adnexa and the typical history of these cases is that they undergo a series of curettements without relief. This in time is followed by laparotomy and removal of the ovary, and in a great many cases by a second operation which unsexes the patient by hysterectomy. This form of bleeding has been termed myopathic bleeding and it has not been definitely demonstrated just what the pathological reason for this condition is. The microscopical findings are a moderate amount of hyperplasia of the myometrium and endometrium. Whether or not our future studies in endocrinology will throw more light on the subject remains to be seen. Until then, and perhaps thereafter, radium is the remedy that is proving to be mose efficacious and it is in this field that radium therapy is giving some of its most brilliant results. The uniform success of radium therapy in this condition in the hands of practically all workers is the most convincing proof of its efficiency.

As a rule one or two small doses of radium not exceeding 600 mg hrs., restores these patients to a normal menstrual life, and there are a number of cases recorded in which patients so treated have bourne children. What I have said applies to the non-malignant menorrhagias in women around the age of 40 years, but in these cases extreme care should be exercised in eliminating malignancy. The indiscriminate use of radium is to be strongly advised against. In those patients who suffer with pain laterally to the uterus, as pointed out by Clark, of Philadelphia, radium is not to be employed, for it has been his experience that though the excessive bleeding has been checked, the pain was not relieved, but on the contrary frequently made worse. The rule is that pain lateral to the uterus usually means an inflammatory process and the use of radium may serve only to light up a quiescent affair, with the most disastrous results.

Fibroid tumors of the uterus make up the third condition in gynecology where radium therapy has proven itself to be of value. However, it is not the method of choice as a routine, for there are many conditions associated with fibroid tumors that contraindicate the use of radium and conditions in the tumor itself, such as size, areas of complete or partial necrosis and hyaline degeneration. Surgical intervention, whether it be myomectomy or hysterectomy, is attended by such a low mortality rate and the results are so satisfactory that it is unquestionably the method of choice; especially is this true when one considers the co-existent complications and coincident conditions that call for surgery. In the uncomplicated fibroid of moderate size it is surely the easier and safer method to use radium, for the result is certain and the patient is spared the fear and discomfort of an abdominal operation. In conditions which contraindicate surgery, such as extreme obesity, cardio-renal disease, etc., and where the patient has an extreme dread of operation there is a great field for the employment of radium.

Aside from its actual therapeutic value in gynecology radium is serving a great purpose in this field in that it is bringing an increased percentage of gynecological cases to earlier examination. The horror of a knife which is in every woman's heart who suffers with pelvic disorders, fear of complications and prolonged sojourns in hospitals cause large numbers of women to defer examination until, too frequently, they have advanced beyond surgical aid, but as a knowledge of the value of radium therapy with its accompanying freedom of danger and discomfort becomes more generally known women will lose their fear and will present themselves earlier for examination, and in this way the percentage of inoperable cancers will be greatly diminished. I trust that the time will come when this fear will be so completely eliminated that every woman who finds herself suffering from what she knows as "female complaint" will present herself immediately for examination, and I believe that when it is established in the minds of the public at large that radium holds a place that is equal to surgery and that it is probable that radium instead of the knife will be employed, then women will have less fear and will seek examination and advice and in this way, if no other, radium will become a great boon to woman-kind.

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## DISCUSSION ON THE PAPERS OF DRS. WILLIAM S. ANDERSON AND SHIELDS ABERNATHY.

Dr. William D. Haggard, Nashville: I think these two papers are very sound and very sane, and the authors have given us a perfect presentation of the subject that is very illuminating.

Speaking of the first paper briefly, in fibroids of the size of a three months pregnancy, the use of radium is a beautiful method by which to cure the patient in a simple and non-dangerous fashion. As has been pointed out by the essayist, it should not be employed in large tumors, nor in those in which there are inflammatory complications or conditions associated with pain. I think, too, that the essential menorrhagias and metrorrhagias about the time of the menopause are greatly benefitted by radium. We utilized this plan in the case of a woman, 48 years of age, who had been menstruating very profusely, and had been curetted on several occasions, with only temporary benefit. Many such patients have been hysterectomized. It is a simple thing to introduce radium under gas anesthesia, and, as has been indicated, use for fourteen to twenty hours. We used it twenty hours and succeeded in stopping the flow.

I have a case today of a woman, 52 years of age, very fleshy, with a great deal of bleeding, due either to a submucous fibroid or malignancy. That, of course, is a debatable ground. The simplest and surest way in that case would be to curette the uterus, and if we find a gray-like material, which is obviously carcinoma, I would not feel like trusting to radium, or to using radium for twenty-four hours as the best protection against matastatic dissemination. If one used radium and the woman did not recover in a short time, he should remove the uterus.

So far as carcinoma of the cervix is concerned, I suppose all of our experiences have been extremely humiliating. I have operated on several hundred cases, and can count all the five year cures on the fingers of one hand and part of the other. I had the pleasure of seeing a woman recently on whom I operated for Dr. Tucker seventeen years ago, and she is quite well now. Dr. Cullen and Dr. Taussig investigated all the cases of surgeons who had five-year cures in cases of cancer of the cervix and they found only 65 cases were well at the end of five years. That is a mortifying showing.

So far, we have only used radium in the inoperable cases. I have not been able to go as far as a South American surgeon in using it in early cases. If I had cancer myself I would rather have the radium used than be subjected to a vaginal hysterectomy, lf I were a woman. I have not gotten my own consent to take that radical step, but I really believe it is coming.

We have used radium in 60 inoperable cases of carcinoma of the cervix, the oldest one having gone two and a half years. Many of them are under treatment now, and the prognosis is as yet undetermined. We have promised these people nothing. However, four of the oldest cases have gone about two years now and are clinically free from symptoms, and that seems to us gratifying. Of this group three have had recurrences after hysterectomy, which was done by some of my surgical colleagues in the city. All three recurred within a year. One had had a recurrence, was reoperated, and that particular patient I think is the best of the group, because perhaps we worked harder on her. She received four or five applications of radium, which was supplemented with very intensive radiation with a Coolidge tube. One of these patients had carcinoma of the cervix which resembled a small door knob. In this case we aplied the cautery and then applications of radium. I think it is bad business to put radium on raw surfaces. I put radium in the cervix, the patient did not do well, and was disappointed. She had a great deal of trouble. Finally, instead of learning of her death, much to our happiness she came in as chipper as you please one spring morning perfectly free from symptoms. Clark had a similar experience in a woman whom he had given up as hopeless—she came back perfectly free from symptoms.

It does not behoove us to be overenthusiastic about this or any other remedy. We try to be extremely careful about it; we are not pessimistic at all, but at least cautious.

I agree with the last essayist that it is perfectly surprising what radium can do, and particularly in inoperable carcinoma of the uterus, which used to be such a bugbear to the surgeon that almost weekly we had to turn somebody away. We dared not tell a woman what really was the matter with her. We were glad to tell her that she did not have to be operated on, which meant to us and to the family that it was a hopeless case. If radium will do something not only for inoperable cases, if we can get the technic perfected to such a point that these cases can be caught early in their course, I agree with Dr. Abernathy that it will be a great boon to humanity.

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Dr. J. M. King, Nashville: I wish to compliment Dr. Anderson and Dr. Abernathy on their papers. They are most excellent.

I wish to speak briefly of a comparison between the x-ray and radium. You may see a large growth on the surface disappear under the influence of the x-ray, also from radium. We are dealing with a most intense energy. It is something like light. The waves that are given off fall upon the cells of the blood vessels and produce endarteritis which is destructive in its results, thereby producing a lessening of the growth, That is the therapeutic action of radium and x-rays. It is nothing more than an energy which falls upon the cells and produces destruction.

There is very little further to discuss with reference to its application. We should not go astray on this question as many of us have on salvarsan and other new things in medicine. We must use judgment, exercise a level head, and study the cases carefully and apply it in selected cases. Radium is needed and is to be used as the x-ray and other remedies should be used.

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Dr. C. N. Cowden, Nashville: Radium is a wonderful thing, as every one knows who has watched its effects upon the human economy. However, I do not believe it is going to prove as permanent in its effects as we expected it would be at first.

In 1910 and 1912, I heard Dr. Kelly, of Baltimore, make the statement in Chicago that he could cure every case of cancer if he had enough radium. Estimating it would take $750,000.00 worth of radium to accomplish that, he could cure them all. I heard him make a statement in Atlantic City a few years ago that he could cure every case of fibroid tumor of the uterus, no matter how large, with radium, and that operation in this day and time upon fibroid tumors of the uterus was a surgical crime. I do not believe that either one of these statements is true. In exceptionally large fibroids of the uterus I think the gynecologists of America are adopting the plan of operating upon all of them because of the fact that it takes so long for retrograde metamorphosis of this tissue to take place, and the patient is better off. We are leaving behind some tissue in these large uteri; we do not know what will be the future history of any case, whether it will degenerate into some cancerous condition or not; it is yet too short a time to say.

The most remarkable effect of radium today is in the inoperable carcinomas of the uterus for its temporary effect. In placing radium in contact with these surfaces it is almost unbelievable what changes will take place, and what improvement will take place in the bleeding and in the offensive discharge, and in the shriveling up of the cauliflower mass. But I do not believe, gentlemen, we can cure these cases where we have metastases in other parts of the body.

It has been my experience in the last year or two to have had four cases which we thought were cured locally, but these women went on and died. Three died within the last year. According to all appearances the local conditions were cured, but they went right on and died because metastases had taken place in other organs of the body. We must acknowledge the beautiful results we get in reference to bleeding in any age in life. I am sure, that is one of the most brilliant fields which we find for the use of radium, in controlling these conditions. We have been deprived of doing a hysterectomy for simple bleeding of the uterus. There is a field for it in that particular, but I believe that as we learn more and more about its use, its usefulness will become more circumscribed. As Clark said at a meeting of the Southern Surgical Association, it must be used as an aid to surgery, and not to supplant it at all.

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Dr. E. T. Newell, Chattanooga: In discussing Dr. Anderson's paper in regard to the metrorrhagias, I think it is distinctly conceded that radium is a specific, so to speak, or as much a specific as we have in these conditions, especially in those cases where we have done one or two curettages and failed.

I have in mind two or three cases that I used radium on five years ago, young women, who had been curetted two or three times, with only partial success, and who are now to all appearances clinically well. They are menstruating normally and at the proper time. It is very important in these cases that you give small doses of radium. I think you ought to feel your way along with radium. I do not believe in giving heavy doses. I think in these young women who have thin uteri 50 milligrams for two or three hours is sufficient, and if you get cessation of the trouble for two or three months, and then it returns, you can repeat your radium. As the essayist brought out, we do not want to stop entirely the periods of these young women. You can handle them by giving small doses of radium without much trouble.

In regard to fibroids, I think the general consensus of opinion among practitioners is that large fibroids should not be treated with radium. We must be careful to select the cases, and if we have a case ofpyosalpinx or any other complication or any inflammatory condition in the abdomen, such as an acute appendicitis, or cholecystitis, calcified fibroid tumors, radium is contraindicated because, as has been said, you rekindle these troubles. I had one case who did not have a pelvic inflammation, but she had some slight trouble from the use of radium, but this trouble soon subsided.

In this connection so many men, and particularly surgeons, say you must not use radium because you can not operate after radium has been used. That is a mistake so far as my limited personal experience goes. I have operated several times after radium has been used in the abdomen, and I have not found any great trouble. The adhesions were not so great, and it is not as difficult as some would lead you to believe where you use radium.

Radium is conservative. It does not hospitalize a patient. The patient is not kept in an institution but twenty-four hours, as a rule, and there are no dangers from anaesthesia. There is no mortality, and in this connection I want to speak of headache and nausea about which you have heard. It has been my experience that we seldom have nausea, vomiting, or headache, following the administration of radium.

I had a doctor report a case to me the other day of metrorrhagia in which I had given radium twice and he told me the patient was relieved. He said, after she went home, she suffered a great deal with headache and nausea the next day. I believe I can count on the fingers of one hand the patients who have had headache and nausea following the use of radium. Probably this is because I do not use radium in very heavy doses for a long period. There is a great deal of difference in the technic. Some practitioners like to wipe out the disease in one blow, so to speak, give it all in one week in carcinoma of the cervix. Other men spread the treatment over a period of several weeks, and why not use small doses of radium extending over longer periods of time instead of masive doses at once, and by so doing get rid of the nausea and vomiting that are apt to follow?

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Dr. Carl Robert Crutchfield, Nashville: I have very litle to add to the discussion of these excellent papers which have covered the subject very thoroughly, but I wish to emphasize several points which were brought out by the essayists. One point is the proper selection of cases for radium treatment. There is too much talk about giving patients radium. The cases should be carefully selected, the patients should be considered from every angle before giving radium treatment. We should consider all factors in the case.

In cases of bleeding in young women the x-ray will very often control it. One-x-ray treatment will very often control these cases, and if not one treatment, sometimes two. If, however, the x-ray does not control the bleeding we can use radium, using it cautiously, and not in too large doses. If 50 milligrams of radium is used less than fourteen hours, there will be very few cases in which you get sterility following it.The reason Dr. Newell does not have nausea and vomiting or headache in his cases is because he uses small doses of radium. In cases where we use larger doses it is not uncommon to have nausea and vomiting, especially in carcinomatous cases.

In speaking of carcinoma I want to refer to the aid that is rendered by the x-ray in the treatment of these cases. If you give radium in the case of carcinoma of the cervix, the effect of that radium does not extend more than two or three inches, and it is a negligable factor after that. In the treatment of small carcinomatous lesions we must try to reach the glandular metastases. If we do not, we wil not cure the patient. For that reason a penetrating Coolidge tube can get beyond the field where we give our radium.

In treating a carcinomatous cervix the best method, and one which is used by most practitioners, is to treat the patient for a carcinoma of the cervix, not by giving them small, but large doses of radium. Give it to them for twenty-four, forty-eight, to sixty hours, and break it up into two or three seances. But by all means give them radium when you give it to them. If you get the effects of radium, such as nausea and vomiting, which are the symptoms present, you will know the radium is doing good. On top of that, as close as you can, give heavy Coolidge radiation. Give it to them in front, behind, and forward, and while you may think you have some metastases, you will get a larger percentage of cures.

Lastly, I think the x-ray with radium is the most valuable adjunct in the treatment of carcinomatous conditions that we have.

Dr. William Sailer Anderson, Memphis (closing on his part): I wish to thank you gentlemen most heartily for this liberal discussion of our two papers. I also wish to thank them for the general cooperation and endorsement of the ideas regarding treatment in conection with these two papers.

With reference to the remarks of Dr. King as to the action of radium, I thoroughly agree with him as to why its effects are produced, namely, the action of the rays on the protoplasm of the cells, producing endarteritis, and in that bringing about a cessation of bleeding.

With reference to the remarks of Dr. Haggard, I also agree with him that the use of radium in fibroid tumors of the uterus should be limited to those about the size of a three-months pregnancy unless we are using it in the larger fibroids where we only want to produce a cessation of bleeding for subsequent operation. Large fibroids are surgical for several reasons. First, it is impossible in a large fibroid to introduce the radium to the fundus on account of the tortuous nature of the canal. Second, on account of the fact that these fibroids are so liable to undergo degeneration, and third, the complications that so frequently accompany these cases.

In regard to Dr. Newell's remarks, I am thoroughly in accord with him as to the treatment in the younger women where they have had several curettements, with no appreciable permanent results. These cases are nothing more than a hyperplasia of the endometrium, and here, conditions can be brought back to a normal state.

With regard to nausea, I think it is due to large doses of radium. I have found that where I placed my dosage above the usual size, and the patients have had nausea following, I have attributed the nausea to the large doses. Furthermore, I think large doses of radium produce some form of acidosis in the system. In these cases I push my alkalines, and in that way reduce the acidosis.

In regard to the use of the x-ray, I disagree with one of the speakers when he said the x-ray can be used, and if it does not produce a result, then radium should be employed. The x-rays have more effect upon ovarian tissue than radium, and in these young patients we do not want to use anything that will probably produce some harm on the ovarian secretions, and why not use radium first, and in that way we will get results.

Dr. Shields Abernathy, Memphis, (closing): The dosage of radium in the myopathic conditions of young women has been quite definitely worked out, and the workers at the Radium Institute in New York have considered 600 milligram hours as a maximum dose. Of course, the idea is not to give sufficiently large doses to produce sterility. They have found that about 600 mliligram hours does not produce sterility. It is usually the plan there to give 500 milligram hours and let the patient go for several months to determine what has been accomplished. If the patient still bleeds excessively, she comes back for a second dose which is usually lighter, ranging from 250 to 400 milligram hours. However, it has been definitely decided that 600 milligram hours is a maximum dose short of producing sterility. As a rule 200 milligram hours will produce a permanent menopause. In the Radium Institute, New York, they use 600 milligram hours as a maximum dose.

With regard to the x-ray and radium, to my mind that seems to be a logical procedure. At the Radium Institute where they have every opportunity and unlimited quantities of radium and x-ray apparatus, they have worked this out thoroughly, and I looked up the question. In New York they are not using x-ray in combination with radium and both Bailey and Janeway told me they had tried it out thoroughly and their results had been unsatisfactory. Where they have unlimited quantities of radium and use the radium pack on the outside, I mean using a gram on each side, their results are better than those who have used such small quantities of radium. These gentlemen have abandoned the x-ray treatment in combination with radium. In New York some other workers use it and report nice results.

As a general proposition, in regard to the use of radium, I think conservatism and accurate diagnosis should be the keynote. It is a new procedure. A tube of radium is an innocent appearing affair, but it has untold power almost and it is so easy to slip a piece of radium into the uterine cavity without any immediate bad effects that we must advise against its indiscriminate use. If a practitioner has not worked out his case thoroughly and has not the indications for the use of radium, and simply applies a piece of radium, necessarily his results will not be satisfactory. Any other procedure in surgery has had to go through the experimental stage. It has had its setbacks, and we have to learn from these setbacks. Radium is going through that same thing now. But I will say this, however, if we exercise the same care and precision in making our diagnoses and are careful in the application of radium, we will find it to be a wonderful remedy. Conservatism is the watchword that should be borne in mind in prognosticating the results in these cases. If we are working for statistics, we would not use radium in a great many cases, but I believe it is up to the medical profession to relieve suffering, and when a woman presents herself with an inoperable carcinoma of the cervix, involving the rectum and bladder walls and there are masses in the pelvic cavity, with both parametria thick and infiltrated, we should not turn her down for statistical reasons. If we can give that woman six months or a year of cessation from pain and cessation of discharge, we should do so, otherwise she is ostracized from society. If we can stop that bleeding and give her any comfort whatever, then radium has a definite place.

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## BLOOD TRANSFUSION AND ITS THERAPEUTIC USES.*

By H. Quigg Fletcher, M. D., Chattanooga.

The development of simple methods of technic and the introduction of accurate bloodtests have made blood transfusion an easy surgical procedure without the dangers which once attended its uses.

The method of choice is the indirect sodium citrate method. Lewisohn has pointed out that the quantity of citrate necessary to prevent blood coagulation is not toxic to the patient. He found that the average individual could stand 75 grains without harm.

Contrary to what would be expected, the coagulation time of the recipient's blood after introduction of citrated blood is not retarded in the largest majority of cases, but is shortened immediately after such transfusion. A 2½ per cent solution of sodium citrate is used. We use 30 c. c. to each 250 c. c. of blood. The citrate solution should be made with freshly distilled water and sterilized immediately before using.

The apparatus necessary for transfusion is very simple, consisting of a graduated salvarsan flask, to which is attached about 5 feet of pure gum rubber tubing, one-fourth inch in diameter, supplied with a glass indicator and adaptor at the end to attach to needle. A 500 c. c. glass graduate for collecting blood, a glass stirring rod, a 100 c.c. graduate for measuring the citrate solution, a few 15 gauge needles for collecting the blood, and a few of smaller calibre for infusing the citrated blood into the recipient. The rubber tubing should have special preparation before using. It should be boiled, and then immersed in 10 per cent sodium hydrate solution for twenty-four hours, then allow running water to pass through it for twenty-four hours. This process removes impurities which are believed to give certain reactions after transfusion. The apparatus should be boiled in distilled water or washed thoroughly with sterile distilled water before using.

The technic of obtaining the blood from the donor is carried out in the following manner: The arm is sterilized, a tourniquet is applied just above the elbow tight enough to distend the veins without interfering with the arterial flow. A large Kaliski needle to which is attached 6 inches of rubber tubing wet with 2½% citrate solution is inserted into one of the large veins at the elbow. If there is difficulty in entering the lumen of the vein, we use the method described by Watson, which is done by means of a small, straight intestinal needle inserted transversely, the vein is transfixed to the skin, the needle passing through its upper segment. The vein is steadied and the canula needle can be readily pushed beneath the transfixing needle. The blood is collected in a large graduate in which 30 c. c. of 2½% citrate solution has already been placed; with the glass rod stir continuously and vigorously. Add additional citrate solution as needed. Five hundred to seven hundred and fifty c. c. of blood is the usual amount used. In the glass flask for introducing the blood is placed 2 or 3 ounces of normal salt solution, care being taken to see that the rubber tubing contains no air. Sterilize the arm and apply tourniquet. The needle is then introduced into the recipient's vein. As the blood begins to flow, attach the tube and remove tourniquet. Pour the citrated blood into the flask and elevate about three or four feet. Care should be taken not to allow the blood to enter too rapidly.

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*Read at Annual Meeting of Tennessee State Medical Association at Nashville, April 1921.

The selection of a donor is very important. A young healthy adult should be selected who has been subjected to a complete physical examination, including test for syphilis. The blood should be matched with the recipient's. In nearly all the clinics there are a number of professional donors in which the groups are known, so we find the group of the recipient and get a donor of the same group if possible; if not a number four group donor can be used. When we wish to use some relative or when the groups are not known we match the blood as follows: Collect a specimen of serum from both donor and recipient, also a suspension of cells from each. Then place a drop of serum of recipient on a slide and add a drop of donor's cell suspension and vice versa with donor's serum; if there is agglutination in either slide in one hour's time additional donors should be selected.

The above technic should be carried out when donor and recipient are of the same group to avoid any possibility of agglutination taking place.

Moss found that the human blood fell into four groups: The serum of Group 1 does not agglutinate corpuscles.

The corpuscles are agglutinated by serum of Groups 2, 3 and 4.

The serum of Group 2 agglutinates corpuscles of Groups 1 and 3. The corpuscles are agglutinated by serum of Groups 3 and 4.

The serum of Group 3 agglutinates the corpuscles of Groups 1 and 2. The corpusces are agglutinated by serum of 2 and 4.

The serum of Group 4 agglutinates corpuscles of Groups 1, 2 and 3. The corpuscles are not agglutinated by any serum.

Therefore, Group 1 is universal recipient and Group 4 is universal donor.

By grouping a great number of people the following percentages were found:

Group 1—10%
Group 2—40%
Group 3— 7%
Group 4—43%

By having known sera of Groups 2 and 3 and adding unknown cells to each we easily determine the group.

It has been demonstrated at the Mayo Clinic that the transfused cells have a long life in the recipient; that some of the cells are present for 30 days after transfusion. We can consider transfusion as a transplant of healthy blood which functions as such in the body.

The indications for transfusion are many and divided into two main groups—**primary** and **secondary** anemia. In primary anemia, pernicious anemia is by far the most important condition. The transfusions in pernicious anemia where the disease is not too far advanced give immediate benefit. In the advanced cases it is of very doubtful value. The benefit is believed to be due to the introduction of healthy blood corpuscles which increase the body functions and the stimulation of the blood forming organs. The benefit is only transitory and it is necessary to continue to give transfusions, which in many cases are limited, due to the severe reactions of the latter transfusions which Bocock believes to be due to anaphylactic reactions that occur in the transfusion of blood which exactly match the recipient. It has been noted also that blood from different donors produce different degrees of benefit, and at times are harmful.

In secondary anemia we have many conditions that call for transfusion. In cases where operation is needed where the patient is weak, starved and anemic, transfusion gives us very pleasing results by increasing the ability of the patient to withstand operation and producing a rapid post operative convalescence, also increasing the ability to withstand infection. It is a safe rule in surgical cases to transfuse when the haemogoblin is 40% or below. Transfusions should be performed until the percentage is above this point.

Some of the more common surgical conditions that produce these severe anemias are bleeding hemorrhoids, fibroid tumors of the uterus, ulcers of stomach, duodenum and intestine, cancer, pyloric obseruction and chronic suppurative infections.

In acute hemorrhage of all types, where the patient is suffering from the loss of blood, transfusion is of enormous value both to replace the lost bulk of blood and to check further hemorrhage. Whenever the systolic blood pressure is 80 m.m. Hg. or below in acute hemorrhage transfusion should be done. Transfusion should be given always in hemorrhage in preference to saline infusion, acacia or horse serum. David and Curtis showed that dogs bled until cessation of flow at the carotids could be resuscitated by injection of physiologic serum or transfusion. However, in the eighteen hours following this experiment 77% of the dogs treated with serum died and only 6% of the animals transfused died. The effect of normal saline solution is transcient, as it quicky leaves the vessles for the tissues and urine.

The general post operative oozing in intensily jaundiced patients is very effectively controlled by transfusion, as also is oozing after operations on stomach and intestines.

In hemophylia transfusion acts as a hemostasis by shortening the coagulation time, which is not permanent and usually of only a few days standing; however the hemostatic reaction is long enough to control the bleeding. It has been demonstrated that citrated blood when transfused possesses an equal hemostasis with undiluted blood.

In illuminating gas poisoning, when chemical changes occur which prevent the blood cells from giving up the earbon dioxide and combining with oxygen, venesection followed by transfusion in the best treatment.

In pyelitis where a marked anemia has developed, transfusion is indicated to increase the resistance to infection and replenish the blood.

In the anemias which are associated with chronic focal infection, after the foci have been eradicated, transfusion in conjunction with iron, arsenic, general tonics and proper diet give rapid and wonderful results.

In tuberculosis, acute infections and acute leukemias transfusion is of very little value.

## DISCUSSION OF THE PAPER OF DR. H. QUIGG FLETCHER.

Dr. G. C. Williamson, Columbia: I have done a few transfusions, and the most important thing, I think, about it is a good technic. The doctor went into detail as regards that phase of the subject. A thing of most value in transfusion is the ability to always have a donor on hand. After each transfusion you have three or four that are grouped.

Dr. Fletcher has covered the technic and various methods for transfusions in a very able way, and I do not think I have anything to add. I do want to say for transfusion that it is essential for us to have donors and until we can get two or three we can use some one. Anybody will give you a sufficient quantity of blood if absolutely necessary. These individuals can be used from time to time. It is necessary to keep professional donors all the time. A very important thing the doctor did not mention was the ability to get this blood and transport it. The blood can be drawn here and carried any distance and used. Many physicians in surrounding counties oftentimes need blood for the purpose of transfusion. I wish to thank the doctor for bringing this subject before the society.

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Dr. E. T. Newell, Chattanooga: This is a very important subject. There is hardly a medical society meeting of one day's duration that has not a paper read on this subject, which shows how important it is. Transfusion is so important and so useful and can be used with such great benefit that I feel every hospital and every small institution, in fact every team of doctors or even every doctor, should have a small transfusion outfit at his command ready to use, because this work is emergency work. In pernicious anemia and cases of that character you have ample time, but when you have to deal with a man in an emergency, with an extremity cut off or mangled, with great loss of blood, you have not time to assemble your apparatus, though the apparatus is very simple in character, as Dr. Fletcher has outlined.

There are two methods now in vogue. The old anastomosis, where one vessel was anastomosed to the other is practically obsolete. Bernheim was one of the greatest exponents of anastomosis and devised canulas for this purpose, but he gave them up a long time ago. The last thing brought out is the Teter method. You can not tell by the canula method or the method of Horsley, of Richmond, where you unite the vessels together how much blood you are giving. It is impossible always to avoid clotting. One should use a large needle in drawing blood. That is one of the prime objects. You should get the blood before the needle stops up, and you cannot do that with a small needle but with a large one.

I thought I heard the essayist say something about the rubber tubing which is essential. I would like to suggest that this rubber tubing be as short as posible before it reaches the citrate solution. Another point of importance is to see that the tourniquet is put on properly. If you let somebody else put it on in a slipshod fashion, it will cut off the arterial blood and you will not get a filling of the venous side, and before you get your 1000 c. c. the needle will become plugged and the drawing of the blood will be a failure. It is important not to put it on too tight, and it is important to put it on tight enough. A tube with a gauge on it is the most satisfactory thing you can use. I do not think it is wise to stir too vigorously the citrate solution. You can use the gravity method, or you can use a large syringe put out by some of the instrument makers, graduated to 100 c. c and 200 c. c. You can put in sufficent sodium citrate of 2 per cent in that so that when the syringe is filled you have .2 of 1 per cent. That is a convenient method, because it can be carried to the patient upstairs and there will be no hemolysis.

As I have previously said, this is an important subject, and we ought to be ready to do transfusion at a moment's notice. If you are fully prepared you will save a lot of emergency cases.

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Dr. Richard A. Barr, Nashville: To Dr. Newell's suggestion to always have the rubber tube as short as possible I would like to add another—do as few transfusions as are necessary. Transfusion is a very spectacular method of treatment, and most surgeons seem anxious for opportunities to employ it. The early methods were difficult and for a while it declined in popularity, but the ease of the citrate method has brought it back once more. Unless my work is entirely different from that of other surgeons the majority of the transfusions, in series that were reported, were not indicated. It is spectacular, it makes profound impression on the laity, it is easy, so it is done. Transfusion is not without its dangers, but my remarks are directed more to its uselessness in the average case in which it is done. We may draw wrong conclusions as to its advantages by using it when it is not needed. My observation of its use in the army was that it always seemed to fail in desperate cases. The conditions there were not fair to transfusion. However, we will gain nothing in our knowledge of its real value by using it when there is no indication for it.

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Dr. L. E. Burch, Nashville: The point brought out by Dr. Barr is an exceedingly good one, and transfusion should never be used unless there is a definite indication for it. It is an operation that is not free of danger, and occasionally we hear of deaths on the table.

This question of grouping is only relative, and while a man may belong to Group 1, Group 2, or Group 3, or Group 4, he may belong to Group 1 just as well as to Group 2, and you are likely to get an anaphalaxis. For this reason I think it is wise, before performing transfusion, to always withdraw say half a c. c. from the donor and inject into the patient, and wait fifteen minutes before you go on with your transfusion.

In regard to the rubber tubes, they should be as short as possible. I should like to emphasize the point that new rubber tubes should never be used. If you are compelled to use a new rubber tube, boil it for two or three hours before you use it.

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Dr. Otis S. Warr, Memphis: There are two or three points in connection with this paper which are worth emphasizing. One point is with reference to the technic. In addition to having a needle of sufficient caliber to obtain the blood, if the needle is introduced, not as we usually do it in obtaining blood in small quantities, but in the opposite direction it is a much easier matter to get the quantity of blood desired without having a blood clot in the needle.

In regard to the frequency of transfusions as mentioned by Dr. Barr, in cases of pernicious anemia I am sure the results are better where there is frequent transfusion of small quantities of blood, not more than 50 or 100 c. c., than where large amounts of blood are given with usually a violent reaction, and a long interval allowed to elapse before another transfusion. Frequent transfusion of small quantities of blood will accomplish more good in the end, and with less reaction, and the patient will dread the performance less than when you use large quantities of blood. In the acute secondary anemias from hemorrhage, a large quantity of blood is desirable.

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Dr. H. Quigg Fletcher, Chattanooga, (closing): In regard to the question brought out by Dr. Newell about clotting, I wish to say that when you are drawing the blood, if you will insert the needle toward the stream of blood it draws better. If in running through the rubber tubing you get a slight dripping, and it does not run in a steady stream, you will get clotting. In such a case take out the needle and use another. If you get incipient clotting, it will mix with the citrate blood, and you will get clotting of the whole mixture.

As to the question of apparatus and the transportation of blood from one place to another, there is an apparatus which was used in the Army a great deal. You men in the Army saw this apparatus in use, using a vacuum with a vacuum pump after the introduction of the needle, pumping the blood out of the donor into the container that has the citrate solution. They used this blood immediately sometimes, and in other instances several days later. One man told me they could keep the blood for two or three weeks and then use it for transfusion purposes, but it is much better to use the blood immediately after it is withdrawn. It can be kept on ice for a week or two when it is necessary.

We know that the citrate method is a very easy method, and any one who has surgical technic can do it.

Transfusion ought not to be done by a man who is only doing one once in a while. Some one should give these transfusions regularly, who knows more about it, and not the man who resorts to transfusion once a month. He is like the man who does an operation occasionally, which may be a success or a failure.

One thing I want to emphasize is the ease with which blood transfusion can be given. The blood can be transported say five miles from here and put into a patient.

There are quite a number of indications for the need of transfusion, and Dr. Barr mentioned the fact that practitioners are giving too many transfusions. The question is this: I do not believe it is wise to wait until a patient is in extremis where nothing will do any good, and then give a transfusion. As a rule, these transfusions give very few reactions. You can match the cells of the donor with the serum, as pointed out, and you will know whether the blood is incompatible or not. If you are in doubt, put it in an incubator for twenty-four hours, and usually you have no hemolysis. I have done quite a few transfusions and have had very few reactions.

I have had cases of post-operative hemorrhage, cases of bleeding hemorroids, of hemorrhagic jaundice and many other secondary anaemias. In cases that come to operation, if the percentage of hemoglobin is low and you have a low blood count in a patient that is starved and anemic, you can give a transfusion and get that patient into shape to operate.

We have all visited the different clinics. We have visited the Mayos ,the Baltimore and Chicago clinics, and why do these men who have so many cases transfused before operation? Because they have found they get better results by using transfusion than by not using it. Their mortality is less, and they know that transfusion is doing good or they would not use it.

An important point is to use transfusion because it is a simple method, and you can use it almost as simply as giving a saline infusion. We know that we get reactions from saline infusions. How many of you have used salt solution and get a temperature of 103 or more, when you could have used fresh blood and not have gotten these reactions? The reactions I did not mention because a separate paper could be devoted to that phase of the subject. The immediate reactions we would get would be from air embolus or from getting a dilation of the heart, or from group reaction as we have mentioned. The air embolus can be avoided by careful attention to the technic. Group reaction can be avoided by especially loking into the laboratory technic, but the one important thing to remember is, do not give the transfusion too fast in a weak anemic patient, and one that has lowered heart action, because you may get an acute dilation.

## RAYNAUD'S DISEASE.*

By Jack Witherspoon, M. D., Nashville.

Raynaud's disease is a rare disease in which treatment has been uniformly unsatisfactory.

Our reason for making this report is to call attention to a form of treatment that is not difficult of application, which stops the pain, and seems to prevent gangrene and loss of fingers.

Raynaud's disease and thrombo-angiitis obliterans of Buerger, prythremomelalgia, intermittent claudication, frostbite and some other conditions show similar functional pathology in that the terminal arteriole is constricted either from spasm or angiitis or thrombosis. The blood shows too much viscosity to allow for free capillary circulation and a state of local syncope and local cyanosis of the tissues results.

**Raynaud's Disease**: A vasa contractile disease characterized by three stages:

1. Local Syncope.
2. Local Asphyxia.
3. Local Gangrene.

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*Read at Annual Meeting of Tennessee State Medical Asociation at Nashville, April, 1920.

It is a disease of unknown cause. Tyson advances the following theories of cause:

1. That it is due to endarteritis obliterans.
2. That it is caused by peripheral neuritis.
3. That it is the result of vascular spasm.

The older writers held that Raynaud's disease is a condition of spasm of the distal arteriole, in fingers, toes, ears and nose, at times and went through the stages resembling frostbite. There was no pathologic change of the vessel walls and the symptoms resulted from intermittent spasm. The exciting cause of the spasm is as yet unknown. The fingers first are cold and marble white and usually painless. This is followed by a blue or purple discoloration and associated with severe aching pain. If they are to recover, and by far most do recover, they get tinged and slowly return to normal. If gangrene is to occur blebs form and they are inky black, but a much smaller area is actually lost than at first appears to be involved.

The disease is most fatal to infants. Biers' hyperaemia treatment was suggested by Cushing, who applied a tourniquet frequently each day. Massage has been advised. Nitroglycerine gr 1/150 to gr 1/50 t.i.d. was used by Cate, of Knoxville (Tyson).

**Endarteritis deformans Vuchow:** Various stages may be met with in different vessels or in same vessel, viz:

(a) Hyalin degeneration.
(b) Fatty degeneration.
(c) Liquefactive necrosis.
(d) Atheromatous ulcers.
(e) Calcification.

This pathology has been most extensively studied by Buerger of New York who, on the basis of more than (300) cases, describes the symptoms and pathology of intermittent claudication and allied conditions under the name thrombo-angiitis obliterans of Buerger.

Willy Meyer believes that all true thromboangiitis obliterans of Buerger is due to cigarette smoking and has reported several hundred cases of Russian Jewish tailors so afflicted. They all give a history of smoking excessively. Buerger does not agree that the condition is due to smoking.

Willy Meyer first treated this condition by an effort at lowering the viscosity of the blood by introducing large quantities of saline solution into the veins or under the skin. He gave as much as nine 9 of fluid this way.

Dr. McArthur of Chicago first used the duodenal tube for this condition, using Ringer's or Locke's solution, and the case we report is being treated by the use of the Rehfuss tube into the duodenum, using four or five quarts of Locke's solution daily to a point of hydremia, and relief of symptoms has been secured.

Hydremia, a watery condition of blood serum or blood plasma, can be determined by determining total solids of blood serum by specific gravity.

In that the salt constituents are almost always standard the state of hydremia means that the proteins of the blood serum are low. This can be best determined by its refractile index, which takes but a small amount of blood.

Drinking water has but little effect in concentration of the blood in man, because of interchange of body fluids in the tissues and variation in the amount of fluid excreted by the kidneys.

In oedema of renal disease a marked degree of hydremia is present. The gain in weight and oedema that follows the giving of salt in renal disease is associated with a marked degree of hydremia. Hydremia is more marked in renal than in cardiac oedema and cardiac oedema may occur without dilution of the blood serum.

Locke's Solution:

| | | | |
|---|---|---|---|
| Na Cl -------- | .9% | - 9 | gms per liter |
| Ca Cl$^2$ -------- | .024% | - 0.24 | gms per liter |
| K Cl --------- | .042% | - 0.42 | gms per liter |
| Na$^2$ CO$^3$ ------- | .016.03% | - 0.2 | gms per liter |
| Dextrose ------ | .1% | - 1. | gms per liter |
| Water -------- | to | - 1000 c c | |

## Case Report.

Mrs. F., age 67, complains of blueness and aching of fingers of both hands and both great toes for four and a half months. The attacks may come on several times a week or several times a day and with the attacks the fingers feel tight and stiff and are first white and numb. Then they become blue to a point that they look like they had been dipped in ink. They throb and ache and have kept her up walking and wringing her hands for hours at a time. She has tried hot and cold water, aspirin, codeine and morphine in large doses with little or no relief. At this time there is little or no tactile sensation in her fingers. As the attack wears off and circulation comes back her pain is most extreme, but color and and sensation return and she may remain free from a recurrence for a few hours or a few days. She does not know what precipitates an attack and does not think it exposure to cold.

**Previous History**: Mother of two children—one died in infancy the other 35 years old. Had several miscarriages. About twenty years ago had some kidney complaint which developed into a pyonephrosis. This kidney was partly excised and the pus cavity drained 16 years ago, at which time the ureter was found to be occluded.

The portion of the kidney left showed some secreting ability and there has been a drainage of 8 to 12 oz. purulent urine from a fistulous tract in her loin for 16 years. This was handled by introducing a small section of rubber catheter into the sinus several times daily, (every 6 hours) and draining off one to three ounces of fluid. For the last 8 years she has had a silver catheter held in by tapes and connecting with a rubber bag at her side. She has had several attacks of furunculosis and frequent infections about the finger nails (hang nails) and almost always left one or two fingers tied up. She had influenza in 1919 which was complicated by a sharp attack of endocarditis and from this she recovered with little valvular damage—but with a slight irregularity. Her attack of Raynaud's disease began some 12 months later.

**Physical Examination**: Poorly nourished white woman of 67. Fingers of both hands cyanotic above second phalanges.

Heart negative except occasional dropped systole. Lungs negative.

Draining sinus in right loin, palpable left kidney. Visceral ptosis.

Blood pressure 133-90. The constriction produced by the cuff produced blackening of the hand and wrist which persisted for several minutes.

Hb 80 -4,000,000 Red -8000 White.

Bladder urine: Trace albumin, occasional cast. Specific gravity 1006 to 1022.

Urine from sinus showed pus.

Phthalein 40% in two hours from bladder and good trace from sinus.

X-ray shows a section of catheter in region of lower pole of right kidney. It develops that this catheter was lost 8 years ago, searched for, and finally it was concluded that it had been thrown in the fire with a soiled dressing.

We think we have here a case of Raynaud's disease or thrombo-angiitis obliterans of Buerger in a neurotic individual, the subject of a prolonged systemic infection from pyonephrosis.

### Treatment.

Patient was put to bed, sleep induced by luminal and other sedatives and an effort was made to increase her diet.

The foreign body was removed under gas anesthesia.

A duodenal tube—Rehfuss— without the bulb was introduced and when bile returned to the tube was connected up with an ordinary Murphy drip apparatus.

Locke's solution was given by continuous drip at room temperature until 4 or 5 quarts had been taken.

This was repeated daily then twice a week with relief of pain and cyanosis.

## SEPTIC INFECTION OF THE URINARY PASSAGES IN CHILDREN.*

By R. H. Perry, M. D., and S. P. Bailey, M. D.

Nashvlle.

Although the frequency of urinary sepsis in children was first pointed out by Escherich in 1894 and emphasized by Holt in this country in the same year, and pediatrists have constantly laid stress on this condition since then, urinary examination in children is still frequently neglected. Owing to the obscure symptoms that arise from the urinary infection and the importance of an early diagnosis of such condition we wish again to emphasize the importance of routine urinalysis in diseases of the young; for unless the urine is examined frequently and systematically many cases of obscure pyrexia will remain undiagnosed.

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*Read at the Annual Meeting of the Tennessee State Medical Association, Nashville, April, 1921.

When pus is observed in the urine it is usually the result of a cystitis, a cysto-pyelitis or a pyonephrosis. By far the most common cause of such pyuria is cysto-pyelitis, or pyelitis as it is usually called. To this condition we will devote our attention in this paper, analyzing 45 cases observed during the past four and one-half years.

Pyelitis, or inflammation of the renal pelvis is usually the result of a colon bacillus infection. While principally of academic interest the main point of contention among those studying this condition is as to how the infection reaches the pelvis of the kidney. There are those who would have us believe that colon bacilli from feces that have soiled the vulva enter through the urethra, into the bladder, travel up the ureters and set up an inflammation in the pelvis of the kidney. This, they explain, accounts for the occurrence of the majority of cases in girls.

Recently the so-called hematogenous theory seems to be gaining favor. According to this theory the colon bacilli gain entrance of the general circulation from the intestines, or possibly vagina, urethra, or bladder. These bacilli are excreted through the kidney, and in case the patient has a low resistance they find the pelvis of the kidney a fertile soil for their development. During acute infections, as typhoid, influenza, diarrhoea, etc., the development of pyelitis is favored by concentration of the bacilli in the pelvis of the kidney, or in the blood. Recent work by Smith, Cabot, and Crabtree seems to substantiate this theory.

There is still another theory of infection from the intestines by the lymphatics, but according to Dunn this is not supported by any definite evidence. Neither is the theory of infection by the peri-ureteral lymphatics plausible, as the flow of lymph is from the kidney downward. David and Mattill have recently been unable to experimentally produce infection in this way. The hematogenous theory, it seems to us, is the most plausible so far advanced.

Pyelitis in the young occurs by far most frequently in female infants. Thus of our 45 cases, 41 or 91% have been in females of the average age of 2 years and 4 months. The youngest patient was a girl baby of 10 months, the oldest a boy of 10 years. Infants very much younger than any in our series may develop pyelitis. Thus R. M. Smith, Boston, reports a case in a boy baby two days old, and Hemholz reports three cases in new born boy babies. Although pyelitis occasionally occurs in boys under 6 months of age, after that period by far the majority of cases occur in girls, as is shown in the above series of cases.

On three occasions we have had two cases of pyelitis in the same family. Others have reported as many as six cases of pyelitis in one family occurring within a period of a few years. The majority of cases occur in the spring and summer. Thus 10 of our cases began in the spring, 27 in the summer, and 8 in the fall and winter. The occurrence of so many cases in the spring and summer is due to the close association between diarrhoeal diseases and pyelitis. Thus of 27 cases, 18 were preceded by diarrhoea and nine were previously constipated. Wood thinks constipation is common as a predisposing cause.

In addition to diarrhoea and constipation, other predisposing causes of pyelitis are retention of urine, cold, hyperemia, and diminished diuresis. Again some local condition, as stone or congenital malformation, may be the exciting cause, or it may occur during some acute infectious disease, as typhoid, influenza, etc, etc. Of our 45 cases, 4 occurred during typhoid, 3 during influenza, 1 was associated with acidosis, 1 with acute intestinal intoxication, 1 during a streptococcic sore throat, 2 during whooping cough, and 4 during an attack of infectious diarrhoea. Several Southern authors have recently called attention to the frequency of pyelitis. First, there may be a simple catarrhal inflammation of the bladder and pelvis of the kidney, or second multiple abscesses may develop in the cortex. Sometimes the abscesses radiate in fine lines toward the pelvis of the kidney. Thompson believes that chronic interstitial nephritis may result from the slow infection of the kidney by the colon bacillus. However, of 73 cases of chronic nephritis in infancy and childhood which Heubner was able to collect from his records, only 6 were due to pyelo-cystitis, in his opinion. Grulee suggests that some cases of pyelitis pregnancy may be latent cases of pyelitis of infancy and childhood. Rhonheimer studying this point followed 122 cases over a period of 1 to 8 years and found complete recovery in infants, but states that this is in direct contrast to cases occurring later in childhood where recurrences are common·

**Symptoms**.—Pyelitis is characterized by an abrupt onset. An infant or young child previously well suddenly develops a temperature of 103 to 105. Rigors may occur. Thus in four of our cases there were chills at the onset, and one had convulsions. Still reports three convulsions out of twenty-eight cases. Two types of temperature are ordinarily observed. In one the temperature resembles typhoid, in the other there are marked remissions, the temperature being septic in type. In many cases there may be nothing in the patient's condition to call attention to the kidney as the source of the trouble.

Bentley, classifying pyelitis according to the predominating symptoms, divides the disease into five types:

I. Those with symptoms of general feverish disorders, without any indication that one general system is affected. Of our 27 primary cases of pyelitis 12 come in this group.

II. Those with cerebral symptoms predominating. Two of our cases simulated meningitis.

III. Those with pulmonary symptoms predominating· None of our cases could be classed in this group.

IV. Those with abdominal pain. One girl, age 7 years, had symptoms simulating appendicitis.

V. Cases where frequent and painful micturition calls attention to the disease. Six of our cases fall in this category.

The little patient with pyelitis becomes very miserable and restless, but at times may be almost comatose. Extreme pallor develops in some cases, and occasionally jaundice or an erythematous eruption occurs. The pallor in eight of our cases was extreme. Vomiting was a prominent symptom in 7 of the 45 cases. Where leucocyte counts were made the total counts averaged 20,000 with an increase in polynuclear cells.

The average duration of the acute symptoms of pyelitis is 3 to 8 weeks, according to Holt. Smith thinks so-called "relapses" are due to a secondary invasion of the kidney. Kerley says a case should not be considered cured under 6 months, even if there is no return of the fever. Abt has followed one case for 10 years. This child has frequent remissions with every fresh cold or over-exertion· Often he thinks the disease persists to the 4th or 5th year. Rhonheimer, however, whom we have previously quoted, throws light on this point. The average time it has taken our cases to become entirely pus free has been 18 weeks. One case was 13 months, and two others were 8 and 9 months in clearing up. Twenty-five of our cases followed from 1 to 4 years have not showed any recurrences when once pus free.

Of our 45 cases of pyelitis, 1 died primarily from acidosis; 39 we consider were cured, as there was no evidence of pus after six months without treatment, although the treatment in some cases extended over many weeks; 5 cases passed from observation but were improved.

Although the usual case of pyelitis usually shows pyuria for several months, we are convinced from examinations of the urine of a large number of infants and children that there is a form of pyelitis transient in type and very mild in character. While studying the 45 cases of pyelitis above enumerated we encountered 10 cases in infants 10 months to 29 months of age who ran temperature and showed an appreciable amount of pus in the urine for a week or ten days. Then the temperature would come to normal, the pus disappear, and the urine followed 6 months to 1 year not show any further evidence of infection. To such cases we have given the name Pyelitis simplex.

From the standpoint of prognosis pyelitis is favorable if the infant or child is not marantic at the start. Dunn has seen only one fatal case. Out of 60 cases collected by Jefferies 9 died, 6 from the urinary trouble. Langstein thinks 90% recover. Kowitz, however, states that in some localities the mortality reaches 37%. In this country, we are glad to state, no such death rate ever occurs.

The diagnosis of pyelitis is made by an examination of the urine· The agglutination reaction, while of scientific interest, from a practical standpoint is useless. Urinalysis should be done as a routine in diseases of the young. More than one specimen should be examined, for in case of unilateral pyelitis the ureter may become stopped and pus not show in the first specimen. Stained smears may show the colon bacilli before pus appears in the urine.

To obtain specimens for examination the uretheral orifice in males and the vulva and urethra in females should be cleansed before specimens are collected. Catheterized specimens are not necessary to diagnose pyelitis. In boys the urine can easily be collected in a test-tube or rubber finger-cot held in place with adhesive. In girls specimens can be collected by allowing the infant to lie on a rubber sheet or oil cloth, or a wide mouth bottle or Chopin collector may be used for the purpose. Cotton should not be used as it absorbs the pus cells.

It is not necessary to centrifuge the urine, as nearly any urine will show a few leucocytes. However, some authors, especially Freeman, regard with suspicion two or three cells to a microscopic field in urine collected from boy babies. To determine the number of pus cells that may be in the urine without the patient having pyelitis we have made cell counts on the urine of 100 infants and children, whose ages have ranged from 4 weeks to 11 years. Voided specimens only were examined, and the counts were made with the white blood counter. In this study we found that normal boys showed 1 to 2 cells per cubic m.m., boys suffering with various acute infections, 6 to 8 cells per cubic m.m; normal girls, 5 to 6 cells, and girls suffering with various acute infections 10-12 cells per c. m.m. When the counts remained within the above limits the infant or child did not show any evidence of pyelitis. But when the counts reached 50 to 100 cells per c. m.m., there were signs of urinary trouble. These are the cases we have diagnosed as pyelitis simplex.

In severe cases the pus may constitute one-third of the volume of the urine. In such cases it is visible to the naked eye in the form of flakes, and long shreds, the urine being milky in color. The urine is usually very acid and may contain a trace of albumen. However in some cases many pus cells may be present without any albumen being found. According to Simons less than 50,000 cells per c. mm. gives only a trace of albumen. For this reason the examination of a child's urine is not completed simply by examining for albumen. Examined under the microscope the urine from a pyelitis patient shows pus cells, a few red cells and epithelial cells. After the disease has existed a few days the pus appears in clumps.

Marked tenderness in the lumbar region is present in some cases of pyelitis, and the kidney may be palpable. Cases of long standing should have the kidneys radiographed for stone.

Cases of pyelitis in infancy and childhood are treated along four lines: (1) By using some urinary antiseptic as urotropin, salol, or guaiacol. (2) By making and keeping the urine alkaline with sodium bicarbonate or potassium citrate. (3) By the use of autogenous or stock vaccines, and (4) By pelvic lavage.

The weight of evidence seems to be against the value of vaccines in these cases. Stock vaccines were used in four of our cases, but without any appreciable results.

Hyman, Hinman, Kretschmer and others have called attention to the possibilities of cystoscopy in children. In this way they have carried out pelvic lavage with solutions of silver nitrate and have cured cases of pyelitis that have resisted all other methods of treatment· We believe that such a method of treatment should be advised only when all other methods of treatment have failed and the case has become one of long standing.

There is a diversity of opinion as to the relative value of the alkaline and antiseptic treatment. According to Dunn however, the preponderance of opinion is in favor of the alkaline method. The colon bacilli are less active in this media. To be effective the urine must be kept alkaline. This necessitates frequent examinations, consequently the mother or nurse should be provided with litmus paper to constantly watch the reaction of the urine. Relatively large doses of alkalines are needed to alkalinize the urine, and they must be given at night as well as during the day. For young infants 25 to 30 grains of potassium citrate a day may be necessary, and for older children 10-15 grains of this salt may have to be given every two or three hours to keep the urine alkaline.

In any method of treatment sufficient fluid should be given to keep the sp. gr. of the urine below 1012. Breast fed babies should not be weaned during an attack of pyelitis. Abt advises malt-soup feedings where alkalies are used. Alkaline waters are valuable diuretics in these cases. For older children food rich in salts and spices is to be avoided. Milk, whey, and fruit lemonade, alkaline waters, and vegetable dishes constitute the dietary. The patient must be kept in bed until all of the acute symptoms disappear. Afterwards they must be guarded against over-exertion and exposure .

Alkalies are valuable in the early stages of pyelitis as they cause the temperature to quickly fall, but owing to the difficulty of keeping the urine constantly alkaline and the tendency to cause digestive disturbances, we believe it best to alternate the alkalies with the urinary antiseptics or to use the latter entirely. In 30 of our cases urotropin was the principal drug used. In only one case was guaiacol carbonate used and as the case passed from observation we can not state the result of treatment. We have not had any experience with salol in these cases.

Where uroptropin is used its action depends upon the liberation of formaldehyde. As urotropin is decomposed only in an acid medium it is necessary to keep the urine acid and avoid giving alkalies. To render the urine acid, if it is alkaline, sodium benzoate and acid sodium phosphate are the drugs commonly used. Where urotropin is given the urine should be examined frequently for formaldehyde. If it is not present in the urine the treatment is useless. Frequent cell counts of the urine should be made to determine the reduction in pus-cells, and stained smears should be examined to determine the number of bacteria present.

Urotropin is used satisfactorily in doses of 14 to 16 grains daily. In one of our cases, a baby 1 year of age who did not clear up on 15 gr. daily, quickly became pus free when 30 grains daily were given. Doses of this size are advocated by Freeman. However, another of our cases—a child 2½ years of age, became very miserable and passed a quantity of blood when 45 grains were given during the course of a day. Urotropin should always be given well diluted.

**Summary.**—Urinary sepsis, especially pyelitis, is of very frequent occurrence in children. Only by frequent and systematic examination of the urine can such infection be determined. In a series of 45 cases there was only one death, but this was not due primarily to pyelitis. The cases averaged 18 weeks in becoming pus free. What we have termed pyelitis simplex was encountered in 10 children during the examination of many specimens of urine. In the treatment of pyelitis our best results were obtained by using urotropin as the principal drug.

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## DISCUSSION ON THE JOINT PAPER OF DRS. R. H. PERRY AND SAM P. BAILEY.

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Dr. J. J. Waller, Oliver Springs: This is the most graphic description I have ever listened to on this particular subject of septic infection that occurs in our little children. There is one point I would stress. If we make a blunder and fall over a stump, the cause is sufficient to justify it. When we slip up on a banana peel we feel that our dignity is insulted. These little things we are prone to overlook. We are called sometimes to see a little baby and find it with fever, and we do not know the cause of it. We go over the lungs and the system generally, yet we find no cause for the fever. We cannot explain it. We give some purgation and await results. At this particular time, perchance there is no pus present in the urine. When we have fever in a child which we cannot explain, we should never forget the middle ear, the post-nasal space, and the pelvis of the kidney. If you watch a day or two, the urine in these cases of pyelitis will show pus, and we ought not to hurry in making a diagnosis until we take time to work these things out. This paper calls attention to the important fact of not forgetting the urine in these little ones.

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Dr. Deering J. Roberts, Nashville: The essayist spoke of rendering the urine alkaline with soda, but for this purpose I prefer potash with soda salts. The potash salts will more readily pass out and are quite soluble. In all these cases where I want to render the urine alkaline, I put them on lemonade as a regular thing and keep it up continually. It is a vegetable acid, but the citric acid may interfere somewhat with the stomach and attack the alkali. As I have said, where I want to bring about alkalinity, I always put them on lemonade. That is one way of keeping up the alkalinity continuously.

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Dr. W. H. Cheney, Chattanooga: A few years ago the profession began as a routine the examination of the urine. I can remember very well when very few of the profession were examining the urine as a routine. We finally learned that it was a necessity in connection with the diseases of children. Only a few practitioners who are devoting their entire attention to diseases of children are learning what the doctor has told us. This is an excellent paper and should be read by men who treat children's diseases because they forgot to examine the urine. They are negligent in respect to examining the urine.

I have had cases that came for radiographic examination that had pyelitis. The doctor forgot because they were little children to examine the urine. It is just as important to examine the urine in the child as it is in a grown person. Our practitioners in Chattanooga are doing that, but laboratory workers have not been doing it for many years. Now they are doing it to a more or less extent and are getting to do it more routinely in advanced cases of laboratory work. One should not be content with the examination of one specimen. You may find albumin or you may find sugar or pus in the urine, and send a specimen to the laboratory worker, and you may condemn him because he cannot find what you find. You should not condemn him because the ureter may be stopped up, and you may not have pus. These conditions are sometimes psychic. If these cases are examined periodically, say every six months, the sugar formerly found present may have disappeared after treatment, and many times the physician and laboratory man are at fault in finding sugar when it is not there.

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Dr. F. P. Runyon, Clarksville: Fever in the cases of these children is likely to be obscure unless you mae an examination of the urine. I have had a number of such cases and have verified the diagnosis by the ordinary clinical findings and by examination of the urine, and it remarkable how well they clear up after treatment.

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Dr. R. H. Perry, Nashville, (closing): I want to emphasize the importance of examining more than one specimen of urine. I have seen cases in consultation a number of times where the urine had been examined and reported negative, and when a second specimen of urine was examined, it was found to contain pus. That happened because one kidney was involved, and the ureter plugged, and when the plug came out the pus showed in the urine.

As regards treatment, the English pediatricians depend upon alkalies. Stiel in his textbook hardly mentions urotropin. He depends altogether upon potassium citrate. Like Dr. Roberts, I have never used sodium bicarbonate to a great extent. The objection to the alkali is that unless you can keep the urine constantly alkaline, it does not do any good. If the urine is alkaline one hour and acid the next, you do not get far with your treatment. It is hard to keep the urine alkaline, and you have to administer drugs during the night as well as day, and in babies that is a hard thing to do. You cannot give lemonade to little babies. My best results have been obtained with urotropin.

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# EDITORIALS

## TYPHOID IN TENNESSEE.

It has been only a short number of years since the annually recorded deaths in Tennessee from typhoid fever were in excess of a thousand. In 1918 and 1919, however, marked decreases were registered, the number of typhoid deaths in each of those two years having been considerably less than seven hundred. Had it not been for a water-borne epidemic in one of our cities in 1919, the deaths recorded from typhoid in that year would have been under five hundred. In 1920 a new record was made and only four hundred and thirty-four deaths in Tennessee were charged to typhoid fever.

The reduction in mortality from typhoid in this state has been gradual, the fall each year for six years past having been in direct proportion to the improvement in methods of diagnosis and treatment, the increased work of public health agencies in the state, and the increased knowledge of the public as to the causation and prevention of the disease.

The doctors of Tenessee have improved in their diagnosis and in their treatment of typhoid fever, and have done a great work for its prevention, both through the employment of vaccine and through their efforts for the education of the people concerning the nature of the disease and the methods to be employed for its prevention.

The State Board of Health can justly claim some small credit for the good showing that has been made, for there are now some twenty odd counties in the state where its field units have worked in all of which a very marked reduction in typhoid mortality has been shown The State Board of Health has also, through its laboratory, offered better facilities for positive diagnosis of typhoid; has made it possible for the physician and the people to secure typhoid vaccine at a nominal price in every town in Tennessee; has in its laboratory made large quantities of vaccine which has been used by the field men of the Board and in state institutions; has made investigations of nearly all the public water supplies in Tenessee, and has secured needed improvements in most of those which were found unsatisfactory; has actually built, through its agents in the field, thousands of sanitary closets and septic tanks in rural homes and schools; has distributed many thousands of pamphlets and leaflets treating of typhoid and its prevention; and has furnished advice and active assistance in the management of several typhoid epidemics in the state.

Municipal and county health departments have, several of them, done splendid work in fighting typhoid within their respective jurisdictions by educational work, by active efforts for prevention through vaccination and through supervision of individual cases, through better dairy inspection and better supervision of the hadling of milk, and in other ways.

Nearly all of Tennessee's cities and larger towns have improved their public water supplies, and some few have extended their sewerage systems. There is still room for great improvement in these matters in practically all of the cities and towns, but undoubtedly some of the reduction in typhoid mortality in Tennessee has been due to public improvements of the nature indicated here.

But—in spite of the really great decrease in the typhoid death rate in Tennessee, our rate in 1919, the last year for which comparative figures are available, was the highest typhoid death rate in the registration area of the United States. Compare Tennessee's rate of 28 per 100,000 population with that of Massachusetts, 2.7 per 100,000; or the rate of Wisconsin, 3.1; or with the death rate of Virginia from typhoid, 15.6 per 100,000.

We yet have a long way to go!

While there is no way to tell definitely just what the situation is in the state as a whole, because the physicians of the state persist in neglecting to report their cases to local and county health officers, the information in hand indicates an unusual prevalence of typhoid fever at this time. The June reports to the State Board of Health show that the disease is occurring in all parts of the state, and that it was more prevalent in that month than it has been in June of any year for a number of years back.

It bodes no good when typhoid fever gets a good start in the early summer months. If Tennessee is to make as good a showing in 1921 as was made last year with respect to typhoid mortality, every doctor and every health officer must get very busy.

Vaccinate and preach vaccination. Sanitate and preach sanitation. A big start has been made toward whipping out typhoid in Tennessee, as is shown by constantly decreasing death rates during the last six years. Don't let the 1921 record show a slipping back.

## $3,000,000 FOR VANDERBILT SCHOOL OF MEDICINE.

Announcement was made by Chancellor Kirkland on June 7 that the Vanderbilt School of Medicine is to receive a donation of $3,000-000 from the General Education Board and the Carnegie Foundation and that the medical department of Vanderbilt University is to be moved from its present location in South Nashville to the campus on which other departments of the University are located. This splendid sum which is to be received by Vanderbilt, together with munificent donations which have already been made within recent years, should enable Vanderbilt to establish the best equipped medical school in the South, and one of the best in the land. It seems not improbable, too, that if the school should develop, as its past history indicates that it will, with the splendid additional financial assistance that it has thus received, even further donations may be made for its uses.

It seems evident that the' "powers that be" have worked out a very definite plan for establishing all needed facilities for making medical education in well-endowed institutions available for all the various sections of the United States, and Vanderbilt seems to have been definitely decided upon as one of the institutions which is to receive all needed aid to make it one of the units of a favored group. The history of the medical department of Vanderbilt is such as to warrant the faith that has evidently been imposed in it by those who are in position to donate large sums of money for the benefit of medical education. This school has done a most splendid work through a long period of years and has turned out many hundreds of doctors who have served with great credit throughout the whole world. Thanks to the unselfish devotion of its faculty, who have labored faithfully and well with no purpose other than to serve the cause of scientific medicine and the general interests of humanity, the notable success which has been achieved by the school has been achieved in spite of a lack of any considerable endowment. It is a source of great gratification to the alumni and friends of Vanderbilt that the munificent donation which has come to it will enable the men who have served its medical department as teachers for so long a time with signal success, in spite of the handicaps that a lack of endowment has entailed, will now have opportunity to do their work in an institution provided with all the facilities needed for teaching modern scientific medicine. The work of these men and those who have served before them as teachers in Vanderbilt has made the school and has made its success.

It is apparently a wise move to locate the medical department of Vanderbilt on the same campus as that on which other departments of the University are located, because our present day medical education requirements demand college preparation, and physical nearness of the various departments will tend to make preparation for an entrance into the medical department easier and more certain for the student body of the academic courses. It will also tend to diffuse the true university spirit throughout the whole student mass, which is a thing most desirable.

The present plant of the Vanderbilt School of Medicine will continue to be used until the new plant is ready. It is reported that the present hospital facilities will be considerably increased before the opening of the next school term.

The State of Tennessee is greatly favored in having Vanderbilt University within its borders and is greatly to be congratulated upon the fact that such splendid financial provision has been made for its medical department, whose development will be watched with proud interest and whose success will be hoped for and worked for by all who want the progress of the science of medicine to continue.

## MEDICAL SCHOLARSHIPS.

A great deal has been said, with or without reason, about the difficulties to be encountered by the country boy who is moved to seek a medical education and to serve his own or like communities as a competent physician. There are those who believe or who pretend to believe that it is practically impossible for the ordinary intelligent country boy to find the means for sustaining himself through the term of years over which the courses of medical instruction in modern schools extends. There are those, also, who believe that the country boy on an average is no worse off than his city cousin and that the latter individual will find just as much trouble in financing himself through a medical college as will the representative from the so-called rural districts. We confess that we are not able to appreciate the plaint that the country boy is so sadly handicapped as compared to the boy from town, unless behind it is the desire upon the part of those that give it utterance that none but country boys shall serve as physicians. There are those, too, who believe that any American boy, be he from a great center or a remote hamlet, can get what he makes up his mind to get it if he is endowed with reasonable intelligence, with real determination, and with a willingness to work. The history of this great country shows that this proposition is sound.

However all this may be, it is true beyond any sort of question that medical education is expensive—expensive as to time required and as money required to secure it. Out of this fact, and out of the belief on the part of many that the scarcity—real or fancied—of doctors in the country is due to expensiveness of medical education, has arisen the basis for the suggestion that scholarships should be established in medical schools for the benefit of the country boy who wants to make a doctor of himself. Scholarships are endowed in all other schools, why not in medical schools? If the State is to have a medical department in its State University, why not have scholarships in that department as well as in other departments? The physician, the well educated and well trained physician, is positively necessary to the State welfare—why should not the State provide its own physicians in its own institutions?

There are those who argue for, and those who argue against the soundness of the proposition laid down in the above inquiries. We confess that we are not at all capable of deciding the questions involved, but it does appear to us that if the State is to maintain a department of medicine in its State University it should make most ample provision for that department to the end that it can meet the demands that are to be made upon a first-class medical school and meet such demands as easily and as well as any other medical school can do. The time has come in the history of medical education when a really good medical school must have liberal endowment. No group of physicians, no matter how great their sacrifice or how liberal their contributions may be, can operate and maintain a first-class modern medical school. We can not undertake to argue for or against the wisdom of medical scholarships, because we do not feel capable of determining the questions involved, but we do not believe that the establishment of scholarships which are merely devised to give the student sustenance during his term of study will do more than add to the difficulties of such schools as are not provided with adequate endowment.

In our own state the State University has a Department of Medicine. Some of the very best physicians in Tennessee have come out of this medical school and a group of our very best men are now and have for years been doing its teaching and have been doing it well, as is shown by the character of the physicians who have gone out from it into practice. The faculty of the medical department of our University have made great sacrifices to do the work of teaching and, unless they have had an experience very different from the faculties of other schools without adequate endowment, have also been called upon to make financial contributions to its maintenance. That their efforts have been attended with success in providing good doctors for service in this State and in other states is no argument for the continuance of present conditions, but is rather a very forceful argument for more adequate financial provision by the State for maintenance of the Medical Department of its University. To endow scholarships for country boys, city boys, or any other kind of boys, will not make the school stronger unless its endowment can be added to, for no matter how the student body is brought to the school, the school itself must have money and lots of it if it is to do the work of modern scientific education.

Let Tennessee make ample provision for the permanent endowment of the Medical Department of its University!

## EBLEN-WHITTLE.

Dr. J. G. Eblen, Lenoir City, was married on July 12, 1921, to Miss Annie Whittle, daughter of Mr. and Mrs. James M. Whittle. at the Whittle Springs Methodist Church. Dr. Eblen is one of the live members of the Loudon County Medical Society and the Tennessee State Medical Association and has for a number of years been one of the moving spirits in the East Tennessee Medical Association. The Journal offers him congratulations and extends sincerest good wishes to him and Mrs. Eblen for their very great happiness.

## DR. A. O. ESKEW.

The death of Dr. A. O. Eskew, for years a member of the Wilson County Medical Society and of the Tennessee State Medical Association, occurred at his home in Lebanon about July 1, 1921. The Journal has not received official notice of the death of Dr. Eskew and we are therefore not able at this time to give particulars as to the cause of his death and to give a statement such as we should like to present concerning his life and work. We are informed, however, that he had suffered a long illness and that his death was not at all unexpected. Dr. Eskew had long been an active member of his local medical society, had served his county as health officer, and had otherwise taken a most helpful interest in the general welfare of the community in which he practiced medicine.

## IN MEMORIAM.

Whereas it has been the will of Almighty God to call unto Him our beloved friend and associate, Dr. John T. Allen, and

Whereas, Dr. Allen served so conscientiously as a member of this Association, then be it,

Resolved, That his death is not only an irreparable loss to his family and kindred, but one that will be long felt by the people of this community and the medical profession of the State.

When Dr. Allen passed "to that bourne from which no traveler returns" a life was ended that had been useful to the world—useful both in the business activities of the community in which he moved, and in the professional circle in which he ever glowed with a distinct force.

Dr. John T. Allen's ideals were high always, and under all circumstances he clung to them as closely and persistently as he clung to his honor and his integrity. He elevated and ennobled the standards of professional life. In his dealings with men he sought to inspire the best that was in them. He had a love for moral beauty that argued well for the largeness of his mind. He knew nothing base. He fully realized the limitations of life and strove to do all the good possible in the little span allotted to him here. His whole character may be summed up in the single sentence—He was a gentleman of the highest type. To know him was a privilege. It was his nature to be generous, kind and trustful, and to those who knew him well, his memory will be a continual inspiration while they live.

Resolved: That we, the Committee of the Haywood County Medical and Surgical Association, in token of our appreciation of his loyal services and undying sense of duty, do express our sorrow by tendering to his bereaved family our most heartfelt sympathy; and be it further

Resolved; That these resolutions be spread upon the minutes of this meeting, and a copy furnished his family.

Committee.—J. L. Edwards, Secretary.
E. R. Mulherin,
J. C. Norvell,
G. T. Scott.

Haywood County Medical and Surgical Association.

## LOCATION FOR SALE.

Good doctor wanted in La Grange, Tenn., to take over practice and buy fine office equipment, furniture, standard drugs, and new up-to-date case of instruments belonging to the late Dr. John C. Johnston.

Also good residence for sale.

Address (Mrs.) J. C. Johnston, La Grange, Tenn.

## REPORTS OF COUNCILORS

### First District

To the House of Delegates, Tennessee State Medical Association:

As Councilor of the 1st District, I beg to submit the following report:

In the first district there are eleven counties—Cocke, Greene, Hawkins, Sevier, Carter, Johnson, Unicoi, Claiborn, Grainger, Washington and Hancock. Four of these counties—Unicoi, Claiborn, Grainger and Hancock are unorganized and it seems impossible to maintain an organization in these counties, owing to the fact that they are mountain counties without good roads, and there are few active physicians. They have each been organized in the past, but have failed to report for several years.

Your councilor mailed blanks to the secretaries of each of the organized counties and requested a report. The secretary of the joint societies of Sullivan, Johnson and Carter, and the secretaries of Washington and Greene responded promptly. A second blank and urgent request was mailed to the secretaries of Sevier, Cocke, and Hawkins counties. The secretary of Cocke county then mailed his report.

I am, therefore, able to file reports of only six counties.

#### ANALYSIS OF THE REPORTS FROM THE SIX COUNTIES

| | |
|---|---|
| Number of members paid | 81 |
| Number of physncians | 151 |
| Number not members, but eligible to membership | 45 |
| Number of new members since last April | 7 |

E. H. Baird, Councilor.

| | |
|---|---|
| Number of members who died since last April | 1 |
| Number of members dropped from membership roll | 24 |
| Number of meetings in societies last year | 34 |
| Average attendance at meetings | |
| Number of scientific papers read | 37 |

Only Washington and Greene Counties adopted Medical Defense.

Subtracting the number of new members (7) from the number dropped (24) and the one death leaves a total loss of sixteen members for these six counties. It is regrettable, but the increase in the society dues was probably one cause. In Greene county there probably were other causes as well—the merits of which we are not at liberty to discuss.

| FIRST DISTRICT | Sullivan Carter Johnson | Washington | Cocke | Greene | Totals |
|---|---|---|---|---|---|
| Number of members of the Society now | 27 | 26 | 9 | 21 | 83 |
| Number of physicians residing in the District | 75 | 29 | 16 | 32 | 152 |
| Number of physicians eligible for membership who are not members of the Society | 50 | 1 | 5 | 9 | 65 |
| Number of new members since last April | 3 | 2 |  | 2 | 7 |
| Nnmber of members who have died since last April |  | 1 |  |  | 1 |
| Number of members dropped from membership roll | 13 |  | 2 | 9 | 24 |
| Number of members of Society last year | 11 | 12 | 2 | 8 | 33 |
| Average attendance at meetings | 13 | 15 | 3 | 9 |  |
| Number of scientific papers read | 10 | 15 |  | 12 | 37 |
| Medical Defense for all members? | No | Yes | No | Yes |  |

County Presidents: Sullivan-Carter-Johnson, E. S. King, Bluff City—Washington, L. K. Gibson, Johnson City—Cocke, E. E. Northcutt, Newport—Greene, W. T. Mathes, Greenville.

County Secretaries: Sullivan-Carter-Johnson, W. K. Vance, Jr., Bristol—Washington, E. T. West, Johnson City—Cocke, J. E. Hampton, Newport—Greene, M. A. Blanton, Baileyton.

C. P. Fox, Councillor.

| SECOND DISTRICT | Anderson | Blount | Campbell | Hamblen | Jefferson | Knox | Loudon | Roane | Scott | Totals |
|---|---|---|---|---|---|---|---|---|---|---|
| Number of members of the Society now | 13 | 18 |  | 15 | 13 | 110 | 9 | 19 | 9 | 206 |
| Number of physicians residing in the District | 14 | 25 |  | 17 | 22 | 140 | 16 | 29 | 10 | 273 |
| Number of physicians eligible for membership who are not members of the Society | 1 | 8 |  | 3 | 9 | 25 | 7 | 10 | 1 | 64 |
| Number of new members since last April | 2 | 2 |  | 1 | 2 | 8 | 1 | 2 | 0 | 18 |
| Number of members who have died since last April | 0 | 0 |  | 1 | 0 | 1 | 0 | 0 | 0 | 2 |
| Number of members dropped from membership roll | 3 | 2 |  | 1 | 0 | 20 | 1 | 1 | 0 | 28 |
| Number of meetings of Society last year | 3 | 51 |  | 12 | 2 | 50 | 6 | 10 | 8 | 172 |
| Average attendance at meetings | 5 | 8.7 |  | 10 | 8 | 32 | 6 | 72 | 5 |  |
| Number of scientific papers read | 12 | 22 |  | 12 | 2 | 54 | 5 | 17 | 3 | 127 |
| Medical Defense for all members? | No | Yes |  | Yes | No | Yes | Yes | No | Yes |  |

S. R. Miller, Councilor.

| THIRD DISTRICT | Bradley | Hamilton | McMinn | Monroe | Polk | Rhea | White | Totals |
|---|---|---|---|---|---|---|---|---|
| Number of members of the Society now | 14 | 136 | 10 | 13 | 11 | 4 | 15 | 203 |
| Number of physicians residing in the District | 19 | 192 | 22 | 16 | 16 | 10 | 15 | 290 |
| Number of physicians eligible for membership who are not members of the Society | 5 | 20 | 11 | 1 | 5 | 4 | 2 | 48 |
| Number of new members since last April | 0 | 11 | 2 | 2 | 1 | 0 | 0 | 16 |
| Number of members who have died since last April | 1 | 2 | 0 | 0 | 0 | 0 | 0 | 3 |
| Number of members dropped from membership roll | 1 | 12 | 2 | 0 | 0 | 4 | 0 | 19 |
| Number of members of Society last year | 18 | 52 | 0 | 4 | 5 | 0 | 10 | 98 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Average attendance at meetings | 8 | 34 | 0 | 8 | 6 | 0 | 8 | |
| Number of scientific papers read | 9 | 12 | 0 | 8 | 0 | 0 | 9 | 78 |
| Has your Society by amendment of by-laws, or by resolution, bound itself for the Medical Defense fee of all its members, same to be paid with dues to the State Association? | No | No | Yes | Yes | Yes | No | Yes | |

County Presidents: Bradley, T. J. McCamy, Cleveland—Hamilton, Jno. B. Steele, Chattanooga—McMinn, J. O. Nichols, Etowah—Monroe, Berry T. Crofts, Tellico Plains—Polk, Chauncey W. Strauss, Cooper Hill—Rhea, W. F. Thomason, Dayton—White, D. R. Gist, Sparta.

County Secretaries: Bradley, W. H. Sullivan, Cleveland—Hamilton, H. P. Larimore, Chattanooga—McMinn, R. A. Brock, Athens—Monroe, B. W. Bagwell, Madisonville—Polk, F. O. Geisler, Isabella— Rhea, W. P. McDonald, Spring City—White, A. F. Richards, Sparta.

No Reports received from Grundy, Warren, and Franklin Counties. Meigs not organized.

J. A. Hardin, Councilor.

| FOURTH DISTRICT | Wilson | Overton | Smith | Putnam | Cumberland | Sumner | Mason | Jackson | Totals |
|---|---|---|---|---|---|---|---|---|---|
| Number of members of the Society now | 18 | 6 | 15 | 15 | 3 | 20 | 7 | 8 | 92 |
| Number of physicians residing in the District | 25 | 10 | 24 | 22 | 5 | 32 | 10 | 9 | 137 |
| Number of physicians eligible for membership who are not members of the Society | 5 | 4 | 9 | 7 | 2 | 11 | 3 | 1 | 42 |
| Number of new members since last April | 4 | | 1 | 2 | | 1 | | 1 | 9 |
| Number of members who have died since last April | | | | | | | | | |
| Number of members dropped from membership | 1 | | | | | | | | 1 |
| roll | | 1 | | 5 | 1 | 2 | 3 | | 12 |
| Number of members of Society last year | 13 | 5 | 11 | 8 | 4 | 6 | 4 | 8 | 59 |
| Average attendance at meetings | 12 | 5 | 10 | 7 | 3 | 10 | 6 | 6 | |
| Number of scientific papers read | 14 | 6 | 14 | 6 | 4 | 6 | | 8 | 58 |
| Medical Defense for all members? | No | No* | No | No | No | No | No | Yes | |

County Presidents: Wilson, J. R. Doak, Watertown—Overton, Wm. Brown, Hilham—Smith, W. B. Dalton, Gordonsville—Putnam, W. A. Howard, Cookeville—Cumberland, W. A. Reed, Crossville—Sumner, W. H. Wynne, Gallatin—Macon, M. H. Allen, LaFayette—Jackson, F. B. Clark, Haydenburg.

County Secretaries: Wilson, W. S. Dotson, Lebanon—Overton, A. B. Rualls, Livingston—Putnam, L. D. J. Ensor, Cookeville—Cumberland, V. L. Lewis, Crossville—Sumner, Homer Reese, Gallatin—Macon, A. Y. Kirby, LaFayette—Jackson, C. E. Reeves, Gainesboro.

Fentress, Pickett and Clay Counties are not organized.

*All members pay.

Z. L. Shipley, Councilor.

| FIFTH DISTRICT | Lincoln | Rutherford | Bedford | Totals |
|---|---|---|---|---|
| Number of members of the Society now | 6 | 26 | 15 | 47 |
| Number of physicians residing in the District | 32 | 35 | 20 | 87 |
| Number of physicians eligible for membership who are not members of the Society | 26 | 9 | 5 | 40 |
| Number of new members since last April | 0 | 2 | 0 | 2 |
| Number of members who have died since last April | 0 | 0 | 0 | 0 |
| Number of members dropped from membership roll | 0 | 0 | 0 | 0 |
| Number of members of Society last year | 6 | 10 | 8 | 24 |
| Average attendance at meetings | 6 | 14 | 8 | |
| Number of scientific papers read | 2 | 8 | 7 | 17 |
| Medical Defense for all members? | No | No | No | |

County Presidents: Lincoln, W. S. Joplin, Petersburg—Rutherford, W. T. Robinson, Murfreesboro—Bedford, J. K. Freeman, Bellbuckle.

County Secretaries: Lincoln, J. N. McWilliams Fayetteville—Rutherford, J. A. Scott, Murfreesboro—Bedford, W. H. Avery, Shelbyville.

No reports received from Marshall and Coffee Counties. Moore County not organized.

G. E. Horton, Councilor.

## SIXTH DISTRICT

The Sixth District is composed of Davidson, Montgomery, Robertson, and Cheatham Counties. No medical organization exists in Cheatham County and it does not seem probable that any active Society can be maintained.

The enrollment in each of these organized counties in this District in 1920 and up to April, 1921 for the current year is shown below:

| | No. Members 1920 | No. Members To April 1921 |
|---|---|---|
| Montgomery | 14 | 14 |
| Davidson | 187 | 126 |
| Robertson | 7 | 14 |

The Nashville Academy of Medicine and Davidson County Medical Society holds weekly meetings, with attendance varying from 20 to 100.

This Society has done fairly good work during the past year, though there have been several meetings at which no scientific papers were read. This Society pays Medical Defense assessments for all members. Dr. O. N. Bryan is President, and Dr. Jack Witherspoon is Secretary of the Davidson County Medical Society, The Montgomery Medical Society, while one of the oldest County Societies, has been somewhat inactive during the last few years. The enrollment for the current year is exactly equal to that of last year. Montgomery County has a splendid profession and its Medical Society should be one of the best in the State. Dr. J. W. Brandau is President, and Dr. Bryce Runyon, Secretary, both of Clarksville.

The Robertson County Medical Society has had many ups and d wns during the last several years. After a reroganization, seven members were reported in 1920, but the Society was almost totally inactive during the whole year. This year the Society has again been reorganized and fourteen members were reported upto April 1. We are advised that a good spirit exists among the members this year and that an earnest effort is to be made to hold monthly meetings and to maintain an active interest in the work that should be done by the organization. Dr. W. B. Dye, Springfield, is President and Dr. B. B. Sory, Cedar Hill, is Secretary of this Society.

W. C. Dixon, Councilor.

| SEVENTH DISTRICT | Williamson | Dickson | Giles | Hickman | Maury | Totals |
|---|---|---|---|---|---|---|
| Number of members of the Society now | 8 | 10 | 17 | 8 | 36 | 79 |
| Number of physicians residing in the District | 20 | 18 | 33 | 12 | 44 | 127 |
| Number of physicians eligible for membership who are not members of the Society | 19 | 8 | | 6 | 3 | 36 |
| Number of new members since last April | | | 1 | | 1 | 2 |
| Number of members who have died since last April | | 2 | 1 | | | 3 |
| Number of members dropped from membership roll | 6 | 3 | 1 | | 1 | 11 |
| Number of members of Society last year | 5 | 3 | 12 | | 12 | 32 |
| Average attendance at meetings | 8 | 3 | 10 | | 13 | |
| Number of scientific papers read | 5 | 3 | 15 | | 12 | 35 |
| Medical Defense for all members? | No | No | No | No | Yes | |

County Presidents: Williamson, Dan German, Franklin—Dickson, G. G. Cannon, Cumberland Furnace—Giles, J. B. Wright, Lynnville—Hickman, J. B. Webb, Goodrich—Maury, G. C. Williamson, Columbia.

County Secretaries: :Williamson, K. S. Howlett, Franklin—Dickson, W. J. Sugg, Dickson—Giles, C. A. Abernathy, Pulaski—Hickman, ____________, ___________—Maury, M. A. Beasley, Hampshire.

Perry and Lewis Counties are not organized. M. A. Beasley, Councilor.

| EIGHTH DISTRICT | Carroll | Chester | Decatur | Hardin | Henderson | Henry | McNairy | Madison | Totals |
|---|---|---|---|---|---|---|---|---|---|
| Number of members of the Society now | 8 | 11 | 7 | 10 | 19 | | | 33 | 88 |
| Number of physicians residing in the District | 37 | 9 | | 21 | 25 | | | 9 | 101 |
| Number of physicians eligible for membership who are not members of the Society | 19 | | 3 | 6 | 5 | | | 9 | 42 |
| Number of new members since last April | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 4 | 4 |
| Number of members who have died since last April | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 2 |
| Number of members dropped from membership roll | 6 | 0 | 0 | 0 | 5 | 0 | 0 | 2 | 13 |
| Number of members of Society last year | 5 | 0 | 11 | 1 | 16 | 0 | 0 | 10 | 43 |
| Average attendance at meetings | 7 | 0 | 5 | 10 | 12 | 0 | 0 | 13 | |
| Number of scientific papers read | 8 | 0 | 11 | 1 | 10 | 0 | 0 | 9 | 39 |
| Medical Defense for all members? | No | No | No | No | No | No | No | Yes | |

County Presidents: ______________________________

County Secretaries: ______________________________

No report from Henry and McNairy Counties.

A. B. Dancy, Councilor.

| NINTH DISTRICT | Dyer | Haywood | Lauderdale | Gibson | Obion | Totals |
|---|---|---|---|---|---|---|
| Number of members of the Society now | 32 | 8 | 13 | 18 | 18 | 89 |
| Number of physicians residing in the District | 37 | 20 | 31 | 53 | 31 | 172 |
| Number of physicians eligible for membership who are not members of the Society | 5 | 10 | | 25 | 10 | 50 |
| Number of new members since last April | | | 2 | 1 | 3 | 6 |
| Number of members who have died since last April | 1 | | 1 | | | 2 |
| Number of members dropped from membership roll | | | | 8 | 2 | 10 |
| Number of members of Society last year | 6 | 3 | 10 | 4 | 5 | 28 |
| Average attendance at meetings | 10 | 6 | | 12 | 12 | |
| Number of scientific papers read | 6 | 1 | 1 | 8 | | 16 |
| Medical Defense for all members? | No | Yes | No | No | No | |

County Presidents: Dr. J. B. Berry, Dyersburg—Haywood, G. F. Scott, Brownsville—Lauderdale, W. K. Lackey, Ripley—Gibson, C. B. A. Turner, Dyer—Obion, W. T. Roberts, Troy.

County Secretaries: Dyer, R. L. Motley, Dyersburg—Haywood, J. L. Edwards, Brownsville—Lauderdale, J. W. Sanford, Ripley—Gibson, B. T. Bennett, Trenton—Obion, W. A. Park, Union City.

E. H. Baird, Councilor.

## BOOK REVIEW.

**Treatise on Fractures** in Industrial and Military Practice. By John B. Roberts, M. D., F. A. C. S., Emeritus Professor of Surgery in University of Pennsylvania Graduate School of Medicine, and James A. Kelly, M. D., Associate Professor of Surgery in University of Pennsylvania. Second Edition, with 1081 illustrations. J. B. Lippincott Company, Philadelphia.

Almost certainly the first action of one who examines for the first time a book dealing with the treatment of fractures will be to look over the illustrations, because in such a book, more than any other, perhaps, illustrations are very helpful if they are good illustrations, and very objectionable if they are not good. In the book under review we find an abundance of well chosen and well executed illustrations, including drawings, radiograms and photographs, which will please even the most experienced surgeon and will prove to be especially helpful to the doctor who is required to treat fractures at less frequent intervals than the specialist is called upon to do. The preface of this book is out of the ordinary in that it gives a very complete summary of the teachings of the book, this summary being made up of twenty-six notes in which are stated briefly, clearly and positively the convictions of the authors concerning many fundamental principles in the treatment of fractures. Any doctor who treats fractures would do well to commit these twenty-six paragraphs to memory and keep them there available for "ready use," because in them are to be found rules for guidance in the treatment of nearly every conceivable hurt to the bones of the human body. The x-ray machine and the radiograph are commended in this book for what they can really do, but throughout its pages the reader is constantly impressed with the importance of having a real knowledge of anatomy and with the need of careful and frequent examinations of fractures, and is warned of the danger of too implicit reliance on the reports of the x-ray laboratory. The treatment of all of the fractures of the various skeletal regions is taken up in detail in chapters devoted to anatomical regions or to particular bones, as the case demands, and all of the most important methods are presented, though none is discussed at greater length than is necessary to acquaint the reader with its advantages or disadvantages. One chapter is devoted to obstetric fractures.

TUBERCULOSIS AND HOW TO COMBAT IT. A book for the patient. By Francis M. Pottenger, M. D., Monrovia, California. C. V. Mosby Company, St. Louis. Cloth $2.00.

There are a number of books of this nature, several of which have recently made their appearance, but none of them is more entertainingly written than this by Dr. Pottenger, and none of them presents more of what the patient should know if he intends to give intelligent co-operation in helping the physician to secure his recovery from tuberculosis. Dr. Pottenger carefully guards against making the impression upon the mind of the patient that he can become his own doctor and do as well under his self-directed treatment as might be with the aid of a physician. He does, however, try very earnestly to impress the patient with the need of his having a certain definite knowledge of the nature of tuberculosis and an understanding of the purposes of the methods used in the treatment of the disease. "The intelligent patient is the best patient," and the informed patient necessarily stands the better chance for recovery. Not only so, but the informed patient knows how and will conduct himself so as to protect others against himself. More and more the tuberculous are being urged not to go to the states which are already overcrowded with patients who seek benefits which climate was formerly supposed to offer but which we now know are not to be had from climate. It is hard to conceive how any patient could fail to be helped by a careful study of Dr. Pottenger's little book, and it is believed that the patient who must stay at home, whether he can have sanatorium treatment or not, will help himself and help his physician very greatly by learning thoroughly the lesson which this book teaches so simply and so well.

**A Text-book of Pathology.** By Alfred Stengel, M. D., Sc. D., Professor of Medicine, University of Pennsylvania, and Herbert Fox, M. D., Director of the Pepper Laboratory of Clinical Medicine, University of Pennsylvania. Seventh Edition, reset. Octavo of 1,111 pages with 509 text illustrations, many in colors, and 15 colored plates. Philadelphia and London, W. B. Saunders Company, 1921. Cloth, $8.50.

This edition, the seventh of a well-known and authoritative text in pathology, has been entirely revised and reset to include the newer advances in pathologic knowledge. The convenient arrangement of the book, which has been largely responsible for its popularity, has been retained and should prove helpful to students; the absence of bibliographic references however limits the usefulness of the work to those to whom original sources would be of interest.

**Diseases of Children.** By Herman B. Sheffield, M. D. Formerly Instructor in Diseases of Children, N. Y. Post-graduate Hospital and Medical School; Medical Director Beth David Hospital; etc; New York. C. V. Mosby Company, St. Louis.

Sheffield's Diseases of Children is a work especially adapted for students, general practitioners and pediatricians. It is divided into sections which make it a ready and convenient reference work.

It is especially good on diagnosis and treatment of the various diseases of infancy and childhood. In connection with diagnosis, it has numerous ilustrations which beautifully portray the conditions described.

The methods are modern and scientific, yet extremely practical.

F.

**Operative Surgery.** By John J. McGrath, M. D., F. A. C. S., Professor of Surgery in Fordham University, New York. Sixth revised edition, with 369 illustrations. F. A. Davis Company, Philadelphia. Cloth, $8.00.

In the opinion of your reviewer, this is a very splendid handbook on operative surgery, though it may be that it is somewhat too condensed to best meet the requirements of the student. The book has passed through five editions and is so well known that no extended review is necessary. Suffice it to say that the last revision, which brings it to the sixth edition, has been quite thorough, and altogether in keeping with the excellence which characterizes all of Dr. McGrath's work.

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**Operative Surgery.** By J. Skelton Horsley, M.D., F. A. C. S., Attending Surgeon, St. Elizabeth's Hospital, Richmond, Va. 700 pages, with 613 original illustrations. C. V. Mosby Company, St. Louis. Cloth $8.00.

This book, by a Southern surgeon who has achieved distinction because of his success in a large surgical practice and because of his splendid work as a writer upon surgical subjects, does not pretend to be a complete compilation of all surgical procedures, but is limited in its scope to a consideration of only those operations which the author has done himsellf and some few others which he believes to be best suited for the purposes for which they have been devised. The importance of securing the completest possible removal of pathological tissue and the great need for the restoration of function to the furthest possible degree are emphasized throughout the book, rather than the carrying out of surgical procedures which follow in great detail anatomical guides and which result is securing "pretty" operative results. In a chapter on "Surgical Drainage" Dr. Horsley presents a very interesting and original discussion on this old, but important subject. The chapters on blood vessel surgery constitute, perhaps, the strongest feature of this volume, though all that is treated of is well presented, whether it be surgery of the extremities, surgery of the abdominal cavity, or surgery of the genito-urinary system. All the many illustrations are original and are quite well executed.

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# REPORT OF SOME UNUSUAL OBSTETRICAL COMPLICATIONS NECESSITATING OPERATIVE INTERFERENCE—RUPTURED UTERUS—TWISTED OVARIAN PEDICLE—DERMOID CYST BLOCKING PELVIC OUTLET.*

By E. T. Newell, M. D., Chattanooga.

Laparotomy in complicated obstetrical conditions and in those cases impossible of delivery by the natural route has been practiced at times with varying degrees of success for the last four hundred years. Previous to this time it was probably never done on the living subject. Between the years 1500 and 1876 Caesarean section was quite often done, with such an appalling mortality that it fell in to disfavor. In 1876 this operation again became popular, made so by Porro, who amputated the uterus and sutured the stump to the abdominal wall.

It is not of the classical Caesarean section for the usual contracted pelvis, pregnancy complicated by fibroid tumors, carcinoma of the cervix, eclamptic conditions, etc., that I wish to speak, but of some unusual conditions, more difficult in diagnosis, necessitating prompt operative interference to save life—ruptured uterus, twisted ovarian pedicle, and dermoid cyst. These cases are not often seen by the surgeon until labor has begun and he is only called in because labor is not progressing satisfactorily.

Rupture of the uterus is of rare occurrence, yet when Caesarean section became more popular, for obvious reasons it did occur more frequently than formerly. In the last few years the technique of this procedure is becoming better developed and it will not in the future occur from this cause as often as it did in the past. There is no reason why with a careful closure of the uterus, in layers, that should not have firm union and not be sub- has been subjected to hysterectomy, that it ject to rupture in subsequent labors.

With regard to ovarian cysts complicating pregnancy, William's statistics show that pregnancy is not infrequently complicated by ovarian cysts of one kind or another. If the cysts are small or do not become lodged in the pelvis, pushing the cervix up behind the pubes, or the pedicle does not become twisted, pregnancy may go to full term and labor take place with a normal delivery. However, these complications frequently occur, making delivery impossible and laparotomy imperative. If a case of pregnancy complicated by an ovarian cyst is seen in the first few months it should be operated on as soon as diagnosed. By this procedure the pregnancy will in most cases not be interrupted, but if the case be left to nature, complications may develop necessitating operative interference before full term is reached, with the loss of the child and with a higher maternal mortality, Unfortunately many women do not call in a physician until labor is imminent or has actually set in and the condition is undiagnosed until the progress of the labor is interfered with by the tumor. This possibility and many other complications of more frequent occurrence, and sometimes of equal significance, calls for a thorough examination of all expectant women by the doctor and obstetrician when his services are engaged for the confinement.

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*Read at Annual Meeting of Tennessee State Medical Association, Nashville, April, 1921.

## Report of Cases.

Cast No. 1. Mrs. M. B., white American, age 20, married 3 years.

In May, 1918 she was delivered of a child by Caesarean section. Dr. J. J., of Savannah, Ga., operated on her, so she said, on account of eclampsia. She made an uneventful recovery and had gotten along well up to Nov. 1, 1919. She stated that in February, 1919, she menstruated, but had not menstruated since that time. There was nothing unusual in her history except she was nauseated slightly during this entire time. On Nov. 1st she was taken with the usual labor pains. Dr. A. was called to see her. He made a vaginal examination and said everything was apparently normal. The pains were regular, but only lasted two hours, stopping rather suddenly. The patient went off to sleep in a little while and the doctor went home. He heard no more of the case for two days, when the pains began again and he was called to the home of the patient. He made a second examination and as there seemed to be no progress in the labor brought the patient to the sanitarium, where I saw the case with him. She was in hard labor when I saw her. She told me of the previous trouble that she had had, and of the operation. The scar of the abdomen, the site of the Caesarean incision, was a normal looking scar and as she was in apparent good condition, urine normal, nothing was done. No examination was made. She continued in this condition for six hours, pains regular, but no show. Vaginal examination revealed an undilated soft cervix that appeared unusually high, pains were becoming more frequent and harder, yet during the height of the pain I was unable to make out the hard contracting uterus. You could feel the child, but the uterus did not seem to contract.

This aroused my suspicions as to her exact condition. As she had had a Caesarean section a year previously I thought possibly the uterus had grown to the abdominal incision, which was causing the lack of the usual physical signs. As her general condition at this time was excellent I decided to wait for a while and watch developments. Three hours later a second examination was made. The findings were the same as at first, cervix high, no dilation and no contractions could be felt, yet the child could be made out in the abdomen. The patient's general condition at this time was not so good, pulse was getting rapid and she began to show signs of fatigue and nervousness. Believing that she would not be able to deliver herself I opened the abdomen and found the uterus had ruptured; the baby, with placenta and unruptured membranes, free in the abdominal cavity. The uterus had a rent in it eight inches long in the old line of the Caesarean section. Two large blood clots about the size of an adult's fist was all the blood that was found in the abdominal cavity.

The membranes were ruptured, and the baby removed with its attached placenta. The old incision of the uterus appeared as though it had never healed perfectly. On account of the amount of repair necessary before suturing the uterus, and especially on account of the length of time required, it was decided that a more expedient measure would be to do a supravaginal hysterectomy. This was accordingly done, the abdomen closed in the usual way with a soft rubber drain coming out at the lower angle. The patient made an uneventful recovery and was out of the Sanitarium on the sixteenth day. The child was dead when removed from the abdomen. The uterus had probably been ruptured some time before the laparotomy was performed.

I wrote to the surgeon who performed the Caesarean section, a year previous to the time I saw her, telling him of the case. He wrote thanking me for the information and stated that he had made the closure of the uterus in the usual way, using chromic catgut in the muscle down to the mucous membrane and had sutured the peritoneum with plain catgut over this. He stated that this had been his technique in several other cases and that he was at a loss to account for the rupture. He further stated that he had had several cases that had become pregnant following his Caesarean sections and had had no such complications. In a recent follow-up report on this case, now a little over a year, the patient is doing well and is in apparent perfect health.

Commenting upon this case I wish to say that I did not know the true conditions present until after the abdomen was open. She did not present the usual symptoms of shock that you would expect in such cases, nor did her symptoms indicate she had lost much blood. This was found to be the case when the abdomen was opened.

Case No. 2. Mrs. J. D. A., white American, age 26, married 7 years. Two living children, youngest two years of age. When brought to the sanitarium, Feb. 7, 1921, complained of constant pain in the abdomen, particularly above in the left side of the abdomen. Below to the right a large mass could be felt that seemed more solid than the one above. There was, on close inspection of the abdomen, a sulcus, so to speak, between these two masses. The abdomen was larger than normal for a six and a half to seven months pregnancy, the term that her physician thought she had advanced to. Vaginal examination showed the cervix undilated, although she was having hard contractions in the lower mass every five minutes. The cervix was so high that it was next to impossible to reach it with the examining fingers and was directed squarely against the promotory of the sacrum. She had been in labor for thirty-six hours when seen by me. On closer examination of the abdomen the upper mass appeared to have the signs of functioning in it, and a diagnosis of large ovarian cyst complicating pregnancy was made. The patient was observed for the next six hours, during which time the contractions continued at five and ten-minute intervals, while the constant pain that was present in the upper area gradually increased in intensity. The upper mass seemed to enlarge slightly during this time. A second vaginal examination was made, the cervix was found undilated as in the previous examination, and possibly a little higher up.

Realizing that on account of the position of the cervix it would be impossible for the patient to deliver herself and that the ovarian cyst was enlarging, probably a twisted ovarian pedicle, she was immediately laparotomized. An enormous ovarian cyst of the left side with a twisted pedicle was found. This was above, to the left, and in behind the uterus, pushing its fundus forward and slightly to the right, which accounted for the high position of the cervix, and for the axis of the uterus not being in the normal position.

The cyst was removed and when opened was found to contain the usual contents with some extravasated blood. The uterus following the removal of the cyst immediately assumed its normal position. Knowing, first, that the child was probably not viable (6½ to 7 months), and, second, that she would in all probability deliver herself without difficulty, the abdomen was closed without interfering with the uterus, and the patient given morphine to check the labor pains, which were present when the morphine was begun. The patient got along well for 24 hours, having no labor pains, but at the end of this time, she began to have pains again and delivered herself in an hour and a half. The child was alive when born but only lived about twenty hours. The patient made an uneventful recovery and left the hospital on the eighteenth day.

Commenting on this case it would have been impossible for the patient to have delivered herself on account of the position of the uterus and in all probability she would have ruptured the uterus, as the pains were very strong and frequent at the time of the operation.

Case No. 3. Mrs. C. A. B., white American, age 36. Married one year. Had always menstruated regularly up to the time of her pregnancy, five day type, without pain. She dates her pregnancy to the first week in June, 1920. I was called in consultation in this case March 6, 1921, the patient having been in labor for 24 hours. The doctors in consultation said she was unable to deliver herself. Examination of the abdomen was negative except for a hard mass just above the symphisis pubis, which was thought to be the child's head. Vaginal examination revealed the lower lip of the cervix high up behind and jammed against the os pubis. By persistent and gentle pressure the examining fingers could be pressed between the lower part of the lip and the os pubis. I could feel a few strands of hair in this region, but could not feel more than one-third of the dilated ring of the cervix. A large mass was felt on the posterior vaginal wall completely filling the pelvis, very tense. It came down and became more tense during the violent labor pains which the patient was having.

A diagnosis of probable ovarian cyst filling the pelvis and blocking that passage to the descent of the head was made. The family physician suggested puncture of the cyst with withdrawal of the contents, as a means of getting rid of the obstruction. Knowing the many dangers of this procedure, the possibility of puncturing a large blood vessel, or of the tumor being a papilloma or dermoid cyst, and the serious consequences following the spilling of the contents of such tumors into the abdominal cavity, I advised against this. She was put on the train and sent to the Sanitarium where a laparotomy was immediately performed. On opening the abdomen, it was found that the uterus was pushed up and out of the true pelvis, the cervix being impacted behind the os pubis by a cyst that was impossible of removal until the uterus had been first emptied. After the removal of the uterine contents, it was then possible to introduce the hand into the pelvis and dislodge the cyst and remove it. The cyst was opened following its removal, and found to be a dermoid containing the usual contents, hair, etc.

The child was dead when extracted from the uterus, probably due to the large doses of morphine that had been given during the labor and just prior to the operation while transporting the patient to the Sanitarium. The patient made a normal recovery and went home on the 21st day following the operation.

Commenting on this case, if I had attempted puncture of the cyst, if I had been fortunate enough to have missed the large blood vessels in the tumor, some of the contents of the cyst would have been spilled in the abdominal cavity and the patient would most certainly have developed peritonitis. It would have been impossible for the patient to have delivered herself.

In summing up these reported cases of pregnancy necessitating laparotomy, they represent three distinct lines of operative procedure following the opening of the abdomen. Case No. 1. Laparotomy—Rupture of uterus, baby with placenta, membranes intact, free in peritoneal cavity. The uterus in this case was badly torn and as repair of same would have taken more time than amputation, a supra-vaginal amputation was done as a safer procedure. This operation was really a modified Porro operation. Case No. 2—Laparatomy—Impacted tumor in the pelvis. Caeserean section followed by removal of dermoid of the ovary. Case No. 3—Laparatomy—Impacted tumor in the pelvis. Caesarean section followed by removal of dermoid of the ovary.

These rather unusual cases complicating pregnancy came under my observation in the past year, and on account of the rupture of the uterus in the one case, and the possibility of rupture in the other cases, had not prompt surgical intervention taken place, I thought it might be of some interest to this society to report them.

## DISCUSSION ON THE PAPER OF DR. E. T. NEWELL.

Dr. E. M. Holder, Memphis: I think it is worth while to commend Dr. Newell upon his splendid judgment particularly in the second case reported. He opened the abdomen and closed it without doing any radical surgical interference in regard to the uterus itself. Nine men out of ten would have done a Caesarean section. That is splendid judgment.

In the first case, where he had a rupture, he used good judgment there. The primary object of surgery is to save life, and while he gave the age of the woman as 21, in his attempt to close that rupture he had the attempt of former surgeons who did the operation in a classical way with catgut sutures, but for some reason occasionally, if that union is not strong and the uterus is left in, even though the woman's condition has been good, closing it again would have some risk. The little loss of blood was accounted for by the thrombosis of the vessels following the first operation and the splitting of the uterus down in the original incision, otherwise there was danger from hemorrhage. So I think his judgment was good. A natural event would be to conserve the uterus of a young woman, but it is too big a risk, and his primary idea was to save the patient's life and prevent a subsequent accident of this kind.

Regarding the last case report, no surgeon of great experience would attempt to introduce a trocar or aspirating needle into a mass underneath a gravid uterus. So he did the proper thing there. I have not a word of censure for anything he did; in fact, I want to express my commendation of these three case reports. The teaching in medicine is coming down to case reports in hospital work. The senior classes in all universities and medical colleges spend time in hospitals where they can get practical work. I believe the time is coming when medical associations will be dominated by case reports. These cases are typical and his presentation of them is commendable.

Dr. H. L. Fancher, Chattanooga: I wish to commend Dr. Newell for stating that he did not make a positive diagnosis, yet a man of his keen perception has no trouble in recognizing a surgical abdomen.

The question of Caesarean section is one of importance to all of us now, and there are so many things that can come up in a pregnant uterus which demand operation, which may demand some exploratory incision to know definitely what we have. I remember sixteen years ago being called out in the country to see a patient whom the attending physician said had something materially wrong, but he did not know what. When I got there the patient was dead. In opening the abdomen I found a ruptured uterus and the baby in the free abdominal cavity, and found that she had bled to death. She had three or four large fibroid tumors.

Another case of rupture I had was one in which there was a large myoma in the anterior wall of the uterus. The uterus had ruptured, and the attending physician said we would have to do something; that the pains had evidently given out and the baby was higher up than it was an hour or two previously, and he believed the patient was going into eclampsia because her pulse was getting faster. I found a foot in the cervix, which was contracted down. We rushed the woman to the hospital, opened her up, and found the baby in the abdominal cavity, with the exception of one foot. Rupture had occurred around the side of this myoma which was flattened out in the anterior wall of the uterus. Hysterectomy was done in this case. A great many of these selected cases can be operated on when we know definitely we have trouble that will interfere with normal labor to prevent it, and we do not have to wait until normal labor begins. We should get such a patient in the eighth or ninth month of pregnancy when she is in good condition.

Dr. McPheeters Glasgow, Nashville: Last Christmas, a year ago, I saw a patient from Paris, Tennessee, whose pregnancy was complicated by a fibroid tumor. She was over 30 years of age, married, and had always been in good health. When she came to see me she gave a history of pregnancy of three and a half months duration. She had great frequency of urination and some difficulty in movement of the bowels. Examination revealed a fibroid tumor the size of a child's head and the uterus situated high up. The pregnancy was complicated with great obstruction to the urinary tract and rectum. I had her taken to the hospital, and immediately advised the removal of the uterus and the fibroid. It was not a very difficult or tedious operation. The tumor was attached low to the cervix, was quite large, and it was impossible for her to go on with pregnancy as the symptoms were so urgent from pressure on the bladder and rectum. Pregnant uterus, one ovary and both tubes and tumor were removed. Following this operation this patient did well and had no complications and at present is in perfect health.

Dr. L. L. Sheddan, Knoxville: In regard to Dr. Newell's first case, I want to criticize the management of it a little. In the first place, it is an open question whether a woman who has had a Caesarean section done on her should ever be permitted to try to deliver herself normally again. The operation of Caesarean section, when done is an operation of election, the mortality so low that I question very much a woman ever being allowed to go into labor after a Caesarean section.

Another question comes up in my mind in connection with Caesarean section, and I have had quite a number of cases in which I have done the operation, is whether or not the patient should be sterilized at the time the section is done. These are two questions which to my mind are very important.

She had a right to bear children if she wanted to, and it should have been explained to her at the time, that the operation of sterilization could be done at the same time to save her the danger of future pregnancy. If she was willing to be subjected to another Caesarean section, sterilization should not be done. I have practiced that in a number of cases of the type Dr. Newell spoke of. In doing an operation for some condition where the woman had no children and was anxious to have children, I have let a woman have a normal labor after she has once had a Caesarean section. That is the only criticism I have to offer to the doctor's handling of this case. With the history she gave of a previous Caesarean section, Caesarean section should have been done again as soon as labor began.

As to the other cases, I want to commend him most heartily, as his management of them was ideal.

Dr. E. T. Newell, Chattanooga (Closing): I appreciate the discussion of this paper very much. I thought that these few cases might be of some interest to this Association.

The reason I took the uterus out in the case reported was because I wanted to save the woman's life, as it would have taken more time to repair the edges of the ring than to do a quick supravaginal hysterectomy. The doctor who wrote to me afterwards about her previous operation, described his technic, which is the standard technic I am familiar with, and I am at a loss to know why the uterus ruptured in that case.

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## GASTRIC AND DUODENAL ULCER*

By J. T. Moore, M. D., Algood.

Owing to the unity of symptoms and treatment of gastric and duodenal ulcers, we may discuss both as gastric ulcers.

We may assume with certainty that an ulcer of the stomach is preceded by a local disturbance of the mucous membrane, an erosion or necrosis interfering with the nutrition of the area involved, hence there is sloughing and probably the necrotic tissues are dissolved by the gastric juice, leaving a round, smooth funnel-shaped ulcer. These are located, as a rule, near the pyloric end of the stomach, being found most frequently on the posterior wall near the lesser curvature. Usually they are single, but they may be several, some of which may run together. They vary in size from one-eighth to three-fourths of an inch in diameter. They are rarely ever found in children, but most frequently attack those from eighteen to thirty years of age. Anything which tends to cause indigestion, such as over-eating, imperfect mastication, irregular habits, prepares a field favorable to ulcer. Erosion as a result of coarse, undigested food, hyperacidity, traumatism, worry, anemia, or chronic cattarhal gastritis, all may play a part in the production of ulcer. We must also recognize that the primary focus of infection may be at the root of a tooth, infected adenoids, nasal sinuses, or some other part of the body. It is possible that an infected appendix, fallopian tube, gall bladder, or anal fissure may be the nidus requiring attention.

Rosenow has undoubtedly demonstrated that ulcer of the stomach and duodenum is due to hematogenous infection with streptococci.

The outstanding symptoms are pain, vomiting and hematemesis. Pain is present in most every case, comes on a few minutes after eating, in most cases due to the active secretion of HCL at that time; but in some cases the pain is delayed for from three to five hours, and it is of a boring, aching character; a feeling of oppression, a disinclination to move, not an acute pain, but a most horrible feeling. It has been shown from autopsies that patients have ulcer without any history of pain. The pain from ulcer is often reflected to the back, and is a very annoying symptom. Pain is increased on pressure, and there is usually a resistance by the muscles over the ulcer.

Vomiting is a prominent symptom, coming on when the pain is severest and usually relieves it. Some cases do not vomit, but belch up victuals in sour condition. The vomit is acid.

Hematemesis is rather a marked symptom, occurring in perhaps fifty per cent of the cases of gastric ulcer.

The clinical course and symptoms are of a varied nature in different cases. There is usually a gradual loss of flesh and strength, grave anemia and excessive secretion of hydrochloric acid. The hemoglobin is reduced and the red cells proportionately decreased.

The leukocytes in some cases are increased, while others show leukocytosis.

One of the greatest means of diagnosis is the x-ray by the barium meal. Almost a positive diagnosis can be made. Jacob Buckstein, of the Public Health Service, demonstrated by the Roentgen ray most forcibly the value of the rest and dietetic cure of ulcer. He would take successive pictures, showing the ulcer gradually dissapearing, until it showed normal condition.

I am of the opinion that we have many more cases of gastric ulcer than are really recognized. Many cases who come to us and are treated as of minor importance, with the statement that the stomach is out of order, are really gastric ulcers. I would look on any case having protracted pain in the stomach coming on after meals with suspicion.

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*Read at Annual Meeting Tennessee State Medical Association, Nishville, April, 1921.

In this disease I think it is as important to begin early treatment, as in tuberculosis, because the older and more extensive the ulcer, the greatest danger of large cicatricial tissue resulting, and the greater probability of return. Also, the earlier the treatment is begun, the quicker the cure. There are ulcers which undoubtedly heal without proper treatment, but it is neglected cases which become anemic and develop complications.

The perplexing question in treatment is as to whether it should be surgical or medicinal. From a study of the subject, and my own observation, I would not advise operation until after thorough and proper medicinal treatment had been tried out, unless there is marked pyloric stenosis or other urgent complications. It need not take more than a few weeks to try such treatment.

There have been in the past very extravaclaims made for gastro-entorostomy. Eminent surgeons have reported as high as 75 to 95 per cent cured from this operation, but later review of the cases, I believe, will not substantiate such claims. We have had reports from the large clinics on this operation, claiming 80 to 90 per cent cured, yet out of the series of 273 such cases, Dr. Frank Smithies, former gastro-enterologist of the Mayo Clinic, reported that only 21 per cent were clinically complaint free, the remaining 80 per cent returning, suffering pain, nausea, vomiting or some form of distress. It has been demonstrated that many of these cases develop jejunal ulcer due to the emptying of the acid gastric contents on the new field. It would seem that excision of the ulcer and pyloroplasty, by the method of Finney, should and does produce more satisfactory results.

In the treatment of gastric ulcer, it is necessary for the surgeon and general practitioner to co-operate. Surgery is giving effective and permanent relief to a good per cent of these cases. Proper medicinal treatment will produce apparent cure in 75 or 80 per cent of the cases, but some of them will return. It is our plain duty to look both to the surgical and non-surgical side as to treatment. It is necessaary to remember the probability of fatal perforation.

Friedenwald and other men as prominent have reported that 75 per cent can be cured without surgery. The non-surgical management of this disease has improved very much within the last few years. It consists of diet, rest and medication. I think the best plan is that laid down by Lenhartz, or a modification of it. In carrying out this treatment, every case should be a law unto itself. The patient is put to bed for a period of three or four weeks, and given a diet of milk, eggs and cream every hour from 7 A. M. to 7 P. M. A mixture of 4 oz. of milk, 1½ oz. of cream and one egg is the entire quantity given the first day, and a dose is increased one-half ounce per feeding each day until patient is taking three ounces of the mixture and no further increase for five days. At the end of the first week, strained oatmeal, soft eggs, and soon a little scraped beef and dry bread are given. Gradually and cautiously the diet is changed back toward normal meals as to time of feeding, quantity and character of food. I think a good plan for some time is to instruct patient to drink a glass of milk between meals and at bedtime, if such can be had regularly.

As to medicine I give calcinated magnesia in 15 gr. doses three or four times daily, as this serves as a mild laxative and also neutralizes the acid. Citrate of sodium in 3-grain doses appears better in some cases. Again, bicarbonate of sodium in small doses is sufficient, but I do not believe it should be given in too large quantities, as it has been shown that it really increases the secretion of HCL. Morphine may be necessary for relief of pain, nausea and vomiting in the beginning. It may also be necessary in the beginning of treatment to withhold all food by the mouth for two or three days, and to feed per rectum. I have used this plan of treatment within the past two years in some very severe cases with splendid results.

I will say in conclusion that I do not believe that very much medicine is indicated in this disease. Proper rest and proper diet, regular habits, improvement of hygienic surroundings, individualizing the cases, cutting out tobacco, coffee and whiskey are all important. If the patient under proper treatment for three or four weeks is not improving, or if there are complications, advise surgery.

In the meantime we should not forget to search for a nidus of infection in some other part of the body and should give it attention if found.

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### DISCUSSION ON THE PAPER OF DR. MOORE.

Dr. C. P. Fox, Greeneville: As the essayist did not furnish me any outline of his paper in advance and the subject is rather unusual and confusing. it was impossible for me to prepare a formal discussion, and I am really at a disadvantage in not having heard distinctly what he said during the reading of his paper.

The subjcet of duodenal and gastric ulcer can be taken up together, and I believe one of the most important things to decide, in the first place, in any case of gastric or duodenal ulcer is to determine the emptying of the stomach. I believe that from a surgical standpoint the emptying time of the stomach is the question to decide whether it is a surgical or a medical ulcer. I believe the internists claim that they can cure from 50 to 75 per cent of cases of gastric ulcer by dietetic treatment. As to the percentage of cures in this way, I would be unable to say from experience, but from a rather limited experience in treating these cases medically, I can say that quite a number of cases of gastric ulcer have apparently been cured or their symptoms have been relieved by proper dietetic treatment. I think one of the mistakes that many of the surgeons are making is that they have not been following up their operative treatment by proper diet and proper medical treatment afterward. I believe that where an ulcer is obstructive, that it is practically always surgical, and the surgical procedure that we saw emphasized a few years ago is to my mind very deficient. I do not believe very many cases of gastric ulcer should be treated by gastro-enterostomy. As a mater of fact, the late results of gastro-enterestomy, I think, we will all admit have been disappointing, although the immediate effects have been very flattering. But the operation, where you have obstructive symptoms, should not be confined to a gastro-enterostomy, but always in my mind there should be excision of the ulcer. If an ulcer can be treated by excision without in any way interfering with the emptying of the stomach, the ulcer may be excised without a gastroenterostomy. If, however, the excision of the ulcer leads to stenosis, the question of a partial gastrectomy or duodenectomy would be the operation to be considered.

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Dr. Otis S. Warr, Memphis: I am sure we are finding a great many more cases of gastric and duodenal ulcer than we did a few years ago, and it is only because we are on the lookout for these lesions. Today the x-ray is regarded as the court of final appeal in the diagnosis of ulcer. Many times, without access to the facilities of the modern x-ray, if the general practitioner will keep in mind the possibility of an ulcer, he will find that a carefully elicited history will oftentimes put him on the right track. Many cases of chronic stomach complaint are passed over indifferently, whereas if a careful history had been worked out, the diagnosis would have been made very easily.

In regard to the treatment, I will take issue with the essayist as to the Lenhartz plan of treatment. The Sippy plan of treatment comes more nearly meeting the physiological requirements than the Lenhartz treatment; but the difficulty with all medical treatment is that we are oftentimes led to believe we are getting cures when the natural tendency is for these lesions to undergo periods of remission which we might very readily mistake for a cure. If these cases that are treated medically were followed from year to year, I think we would find a marked tendency to recurrence, so that I believe these cases are not really cured, but are simply relieved temporarily.

The big problem, as the essayist mentioned, is to know when these cases become surgical. We all recognize that when we get definite pyloric obstruction, the case is no longer a medical one. If it is a perforated ulcer, the surgeon must take charge. If we find an ulcer is distinctly gastric, with a tendency to recurrence, we should always keep in mind the danger that, sooner or later, that ulcer might become malignant, and we should not wait too long before turning the case over to a surgeon.

I think those of us who have followed cases after surgical management are disapointed with the results because while gastro-enterostomy is probably, in most cases, the best plan of surgical treatment, it is far from a success in all cases. As to whether the Finney operation or any modification of it is better, I am not in a position to say. The cases I have followed after operation have not always been what I would like them to have been.

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Dr. W. K. Sheddan, Columbia: The remarks made by the last speaker caused me to take part in this discussion and to say that if the general practitioner would follow the subsequent course of these cases, he would possibly get more recoveries to record.

I have been engaged in the practice of medicine forty-three years, and thirty odd years ago—yes, forty years ago—I had occasionally cases of this kind fall under my care with hemorrhage, and things of that sort, making the diagnosis unmistakable. In the forty-three years of my professional experience I can say that I have been able to follow twenty or more of these cases carefully. The first case that came under my care died in the Old Soldiers Home here in Nashville a few months ago, having lived forty years since I treated him. After two years of careful management of his diet and very little medicine, he had no evidence of stomach disturbance of any kind.

I recall in my own work twenty-five years ago cases of ulcer that I largely treated by diet and rest. The treatment of these ulcer cases is more a question of diet and rest than the use of drugs. Those patients, some of them, were treated twenty- or twenty-five years ago got well and have still remained well. In fact, they are as well today as they ever were in their lives. They are free from all symptomatology. Recently I have noticed that many surgeons who were very enthusiastic in their operative work on this class of cases have emphasized the fact that if they do not keep these patients upon a proper diet and upon a proper regime after operation, they have recurrences.

I do not know how many general practitioners have done what I have done in keeping track of their cases. These cases have gone along under my observation, a great many of them, for many years, they are living and perfectly well, free from all symptoms. When a patient says that he has been suffering for five or ten years from stomach trouble, it may not mean anything, or it may mean everything. If we study these cases carefully and begin treatment of them at an early stage of their trouble, the surgeon will get very few of them to operate on.

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Dr. Deering J. Roberts, Nashville: It is with diffidence I undertake to say a few words upon this subject, but considering the number of changes we meet at autopsy and in the dissecting room, in which we have positive evidence of healed gastric ulcers, the argument is strong in behalf of medical treatment.

My experience coincides with that of my friend, Dr. Sheddan, and I desire to commend his statements in reference to his practice. I admit the brilliancy of surgery; I admit the wonderful success from surgery in some cases. I would not lay an embargo upon all cases, but the question is not only how, but when to operate is an important thing. It is very essential for us to make our diagnosis by the aid of the laboratory and largely by clinical observation. The very fact that gastroenterostomy is giving such excellent results is largely due I think to the fact that after gastroenterostomy surgeons are now resorting to the same masures that we did in the treatment of these cases. They give the stomach rest, and by giving the patient proper diet, in studying the case carefully, the stomach of the patient is given rest, and nature is a great healer. I believe many of our cases are more dependent upon the vis medicatrix naturae than they are upon the doctor.

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Dr. John A. Gaines, Nashville: This paper has been very interesting to me. It is a subject in which I feel a deep interest, but I am hardly qualified to discuss it.

In speaking of gastric and doudenal ulcers, I think a very important feature in regard to these ulcers is to regard most conditions as peptic ulcers from the fact that they have the same etiology, but I do not think we can classify them under the same category for treatment. I believe in strictly gastric ulcer, where the ulcer is confined to the stomach proper, medicinal treatment is vastly the strongest point to be emphasized. Only in perhaps old chronic indurated conditions, where we can distinctly make out a tumor, should we resort to surgery, or in such cases as present uncontrollable hemorrhage the ulcer-bearing area should be excised. In the treatment of the other types of ulcer, those of the duodenal type, I believe they are much more distinctly surgical. These ulcers are much more acute, a smaller area is involved, and if there is any chronicity about duodenal ulcer when it comes under observation, when we make a diagnosis with the aid of the x-ray we find that we have considerable induration about the area of the ulcer that will cause contraction and partial obstruction. I do not believe medicinal treatment will give satisfactory results in these cases over long periods of time. This is particularly true of duodenal ulcer. I believe in gastric ulcer it is much better to rely upon medicinal treatment than upon surgery except in certain given conditions, where it is necessary to relieve chronic conditions or hemorrhage.

With regard to the etiology, these ulcers are generally caused by the same character of infection or infections, the same type of disturbance in the circulation, the same process of digestion and sloughing away, producing ulcers in the one case and in the other. I do not believe that in gastric ulcer, unless it is one of acute hemorrhage, properly speaking, we should operate on it. I think these cases should certainly be given a thorough and long treatment medically. On the other hand, with a duodenal ulcer it is very seldom that it remains cured from medicinal treatment, and unless you stop the irritation of the stomach and the acid from emptying over that area, with the period of recurrence in the fall or spring, the ulcer is almost certain to come back again. I have seen many cases that were cured medically which later on developed contraction and partial obstruction. These patients have had the same symptoms of obstruction as they had in the beginning. Any duodenal or gastric ulcer that does not heal should receive dietetic and medical treatment. All chronic duodenal ulcers should receive the attention of the surgeon. All indurated ulcers in the stomach proper should receive surgical attention.

## THE MODERN SURGICAL OPERATION.*

By C. N. Cowden, M. D., Nashville.

Surgery in the recent past, like every other science, has advanced by eras or epochs.

In the days of Hippocrates, surgery was heroic, and was only employed as a last resort to separate the patient from his malady after all other methods had failed. It had very few followers who advocated its teaching, and fewer patients who availed themselves of its curative or meager life saving benefits. Then came the epoch of Versalius with his crude knowledge of anatomy, which marked a distinct advance over the former period. During the latter part of this epoch, Morton gave us anaesthesia, the greatest single contribution to surgery ever given to the human race. It has made possible every advance that has been made since its acceptance by the profession, and the universality of its benefits is manifested wherever the science of surgery is practiced.

Even with the aid of anaesthesia, progress was slow and advance was limited, until Pasteur and Lister blazed like twin comets over the surgical world, giving us what has been termed the pathological era. They laid the foundation for all time to come and since then rapid strides have been made in the perfection of the science and art of surgery. The dominant idea that they gave to the world was the prevention of the development of bacteria in wounds, or the removal of the products of infection after their entrance into the tissues of the body.

Then Metchnikoff and Wright came on, who taught us that these bacteria worked in the tissues, and that when the infection was under way, the patient was turned into a factory, whose chief aim was to manufacture antibodies or opsonins to strangle or arrest the micro-organisms, and multiply the phagocytes to dispose of them later. In other words, they taught us to conserve the patient's natural resistance and help him turn the tide of battle between bacteria and phagocyte.

Before the days of antisepsis the field of the surgeon was very much restricted, practically limited to accidents, emergencies, the removal of tumors, amputations and a few other minor procedures. Now, as a result of our ability to perform operations without pain, due to anaesthesia, and our ability to perform operations without infection and therefore almost without danger, thanks to antisepsis, the range of modern surgery has been enormously increased, until almost every organ of the body is attacked with an intrepidity born of an assurance of safety, and recovery usually sets the seal of approval on the judgment and technical skill of the modern surgeon. Unless one has lived through the old surgery in the days of inflammation, wound infection, and septic fever, with the terminal stages of "laudable pus," erysipelas, gangrene, etc., he can hardly appreciate the widening of the field of operative surgery. In the beginning of my medical studies in obscure cases we had to wait until time or progress of the disease had developed symptoms and physical signs that would in a measure make us certain of the diagnosis. Today, if we are not sure, by all of our modern methods of diagnosis, whether there is serious danger going on which, if not arrested, will result in death, we deliberately explore almost any part of our human anatomy to determine the exact nature of the trouble before it is too late.

The past century witnessed many stupendous advances in our science. In fact, no other science has traveled so far or gained so much, but when one individually reviews his personal work in the past, he finds many things that he would like to improve upon. The operating room has by no means been robbed of its terrors, and the post operative couch is far from being a bed of roses. One personal eyperience is enough to make the stoutest heart shrink at the thought of a repetition.

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*Read at annual meeting of Tennessee State Medical Association at Nashville, April, 1921.

Just the experience of going under an anaesthetic is dreaded by all, for no matter how safe you consider ether or any other anaesthetic, the one that it to go under its subtle influence has the deep rooted fear that some heart or lung complication or some other organic abnormality will prevent them from ever awakening again. Assure them as we may, the fact remains that it is a horrible experience, and one that we all would gladly refuse if there was any other possible way.

We go through the stage of anaesthesia and react out of it to another experience that is almost indescribable; nausea, vomiting, thirst and restlessness until death would almost be a relief. You say this is an exaggeration and only occurs in an occasional case, but it occurs to a greater or less degree in almost every case. To realize to its fullest degree what it means, it must be gone through and experienced from the personal view point. Shock, ether pneumonia, nephritis, cystitis, gas pains, and a few other complications that we very often meet with, still further add to its many objectionable features. This harmful effect of general anaesthesia has been one of the outstanding objections that we have had to solve.

Leonard and Corning then came forth with local anaesthesia with sure, but less injurious effects of fear, worry and nervous excitement incident to an operation done with the patient keenly alive to every sensation, except severe pain. This mental anxiety and nervous strain that comes from just the idea of being cut on, limits the usefulness of local anaesthesia to a small class of cases. We therefore are placed in the unenviable position of choosing between two evils. We must give general surgical anaesthesia, knowing all the while that in grave risks the interference of the action of the kidney alone, or with post ether pneumonia, disregarding all other unfavorable factors, would often cause death not on the table, but later; or if the surgeon wished to escape this horn of the dilemma he must discard general anaesthesia altogether and adopt local anaesthesia alone as the method of his choice. In this case many of the patients will go through operation without pain, a larger number with pain, and all of them with great mental anxiety and distress, the harmful effects of which must not be underestimated.

As a result, two types of surgeons have grown up: those who believe in local anaesthesia exclusively in most operations, and especially in bad risks; the other and larger number comprising those who believe in giving general anaesthesia to all patients, and who constantly reject those cases which in their experience and judgment have a margin of safety too narrow to risk operation under the general anaesthetic. Crile, believing that neither class of surgeons were obtaining the most desirable results from the point of view of the patient's comfort and safety, has presented us with his anociation or analgesia based upon the kinetic theory of shock. He has proven that there is no anaesthetic that will exclude all nocuous or harmful physical and psychic stimuli from the brain cells. Blocking the nerves with local anaesthesia protects the brain from all operative injury, but does not protect the brain from psychic strain. General anaesthesia excludes the psychic stimulation, but does not exclude traumatic. Each anaesthesia only covers a part of the field and in order to reach the perfect goal of operative surgery, stripped of all objectionable features, Crile has worked out a method that he believes has solved, through selection and combination of anaesthetics, this problem by producing a state of analgesia in conjunction with local anaesthesia. He has demonstrated the remarkable property of gas and oxygen anaesthesia, which, when given to a particular degree, produces a condition known as analgesia, in which the patient is free to a considerable extent from the sensation of pain, yet entertains his intellectual control and at the same time is entirely free from his emotions or sense of fear. He has by nerve blocking or infiltration anaesthesia protected the brain from any harmful influences from trauma, and with analgesia kept any harmful psychic influence from depressing the patient. This he maintains, can be continued by the hour, even with a very sick patient, with very little, if any harmful results whatever, as the patient has only undergone, with all obnoxious stimuli to the brain cut off, a shockless operation that is in many cases a rather novel or pleasant experience.

When one comes to us with a new idea or a different method that supplants the old, we should adopt a conservative attitude. Conservatism is the only protection we have against the introduction of a multitude of fanciful and harmful theories that might be foisted upon us almost daily by earnest advocates of possibly unwise plans or imperfect or untried methods. As a rule I believe the profession as a whole is eager enough to accept new ideas when they are properly presented, and if in a way that appeals to reason; but we are all so busy carrying out the old established method that we have been executing so long, it is sometimes difficult for us to drop the old and adopt the new idea or grasp a new principle. I do not believe it is wise as a rule to be too quick to be off with the old or on with the new; neither do I think it is wise to shut ourselves up from every advance or important step that might be made. We are making such rapid strides that our methods suffice for today; tomorrow they are out of date, and the profession has moved a step further toward the higher ideals and the better way.

The question that I wish us to consider is: Have we reached with our present methods the highest pinnacle that can be attained in our work, or is there a better way or method that we can employ that has less of the objectionable features? I think that a visit to Crile's clinic at Lakeside Hospital for a day or two will convince the most skeptical man that is to be found in our ranks. What we see there is so startling and so far removed from the old-time methods that we have almost accepted as being the last word in surgical technique that we are almost unable to believe that we are witnessing a surgical operation, but are tempted to feel that we are witnessing a sleight-of-hand performance, or a work of legerdemain. It certainly looks like there is 'a trick to it,' and we wonder if it is actually true and based upon scientific principles and correct theories.

You see patients in bed in their room or rolled into the operating amphitheater perfectly calm and seemingly obvious to all fear, dread or emotional disturbance whatever. They have had a pre-operative dose of morphia and atropia or scopal, and are given very deftly some hyperdermic injection of a solution of a local anaesthetic, such as novocaine, along with some nitrous oxide gas and oxygen. You hear the patient talking to the nurse or surgeon as the operation proceeds, the patient seemingly the least concerned of all about what is taking place, with no disturbance of pulse or respiration, with calm facial expression, and with no manifestation of fear, worry or nervous excitement. As the diseased tissue or organ is removed, the lips of the wound are infiltrated with a solution of quinine urea and then closed in the usual way. You see the patient an hour later, perfectly comfortable in bed, no pain, nausea, vomiting or thirst, with only a feeling of tranquility and relief that the operation is over and all is well. Six hours later they usually have had a refreshing sleep and are taking fluids or liquid nourishment, with nothing to remind them that they have been through with a severe ordeal or unpleasant experience.

We marvel at what we have seen, and wonder if there is not some catch in it somewhere. There is none whatever, everything is just as it appears. We have only witnessed a modern shockless operation, and this shockless operation marks the dawn of a new era that is to shine forth with unsurpassed brilliancy and add greater lustre to our already wonderful science. It matters not whether you or I consider it to be the exhibition of the dextrous skill of a wonderful operator, or whether we consider or call it a passing fad, or whether the profession as a whole or in part condemns it as impossible or impractical, it is here to stay, and I predict that we will be forced to adopt Crile's methods, unless we keep our patients in total ignorance of their splendid results. If they knew and realized the difference now, they would demand it at our hands or go where they could be operated on by those who read the signs of the times and who are familiarizing themselves with its magical technique.

You ask if I think that this method will be universally adopted in the near future, and it it will supplant all other methods? Unfortunately, no, because at the present, while the field for its employment is very large and is constantly widening, there are a few conditions wherein the technique has not yet been worked out. Again, many of us on account of our age, and because our past experience has tied us to the old regime, will never be able to master the subject in some of its finer details, as it is a known fact that an "ether surgeon" is a poor local anaesthesia operator, on account of his rough handling of the tissues, he will find it difficult to pull away from the old groove in which he has been running so long. It is one thing to have decided upon analgesia as the most satisfactory form of anaesthetic; it is quite another thing to properly administer analgesia.

The first thing for us to learn is, that it is a system and not a technique that is to be mastered. This system is made up of many factors that are necessary for success. First, the surgeon must have a thorough knowledge of the theories and principles upon which it is based, and then master in detail every step. This requires skill and abilty that many of us do not possess. It also requires for its employment an organized hospital, with special trained orderlies, interns, house surgeon, assistants, superintendents and nurses, who by simply performing each one his duty connected with the case will inspire the patient with confidence and assurance that the work can be done with no fear or doubt of the result. It requires a special environment, if you please, where each one puts enthusiasm into his task, and where everyone who comes into relation with the patient, even to the most minute attention, must bear in mind that slight errors, of ommission or commission, are factors that may contribute in a great degree to failure of the operation.

The patient's mental attitude must be such as to render hearty co-operation in what is to be done. Once in the operating room or at the bedside where the operation is to be done, with your patient thoroughly prepared, the operator must of necessity be an adept in the use of local anaesthesia. There are several points of prime importance that we must observe. No trunk nerve or filiament should be omitted, for the conscious patient will promptly protest, and you will forfeit his confidence if the injltration is incomplete. Every divi- of a sensitive tissue must therefore be preceded by the injection of a novocaine solution until perfect complete local anaesthesia is secured. A solution of novocaine solution can be routinely used in all parts of the body, in all ages, in the debilitated and the strong, in small or large operations, and it is practically free from any toxic effect. To obtain the best results under local anaesthesia, the surgeon must of necessity use the gentlest manipulation, avoiding all pulling, tearing or blunt dissecting. Sharp dissection and gentle handling of the tissues produces the least amount of tissue injury and thereby aids very materially in the repair of the wound. Every step of the operation should be planned and executed as though the patient was keenly alive to every sensation, as if no anaesthetic had been used.

We come now to consider the most difficult part in the operation: The production of the state of analgesia by the administration of the nitrous oxide gas and oxygen, or the anaesthetic proper. Special training in its administration is absolutely required, for, techncally it is most difficult to administer safely. Its administration has been greatly facilitated and simplified by the recent improvements in the apparatus used. All the disadvantages are far outweighed by its advantages when compared with ether or chloroform. It is quick in action, pleasant to take, recovery is immediate, and it, as a rule, produces no nausea and strongly safe-guards and protects the patient against shock.

Nitrous oxide anaesthesia is very difficult to administer, costs more, and requires a very expensive apparatus, but its protection from shock is so great, its inhalation so pleasant, its after effects so slight, it will always be the choice of the patient where the skill of the surgeon is sufficient to do an operation under the magic effects of analgesia plus local anaesthesia.

My paper is not intended as an exhaustive study or full presentation of the subject, neither will time permit me to give in detail all the minute factors that enter into the success of the method under discussion. I only wish to call attention to the fact that the dawn of a new era is at hand. The method is by no means perfected, and has some definite objections that have not yet been overcome. It has its limitations, but its field is a broad one and is being constantly widened.

There is a new surgical ritual being written by Crile and his co-laborers, based upon sound principles and well-proven theories, and he who fails to interpret aright the signs of the times will fail to keep to the forefront of the profession. Anociation is far beyond the experimental stage, and is the dominant idea in surgery today. It is by no means perfect, and has some definite objections in regard to some few operations that have not yet been overcome.

## DISCUSSION ON THE PAPER OF DR. C. N. COWDEN.

Dr, Deering J. Roberts, Nashville: It was an error on the part of the essayist, and our northern friends perpetuate it, in not giving credit for the discovery of ether anaesthesia to Crawford W. Long of Georgia instead of Morton. Long, like other Southern doctors, did not avail himself of publicity, although he preceded or antedated Morton. He was a doctor of medicine, and not a dentist, and preceded Morton in doing a surgical operation under anaesthesia by several years.

Let me say a word or two about local anaesthesia. I never would use local anaesthesia in children, but general anaesthesia. I prefer beginning the anaesthesia with chloroform. Ether is slow, but the sense of suffocation is temporary. Chloroform is quicker , and a patient is soon under its influence, and then after that one can change to ether if it is going to be a prolonged operation. In sixty years of practice, four in the Medical Department of the Confederate State Army, and more than a fourth of a century in the rural districts, I resorted to chloroform anaesthesia in at least 2,500 cases, and never saw a fatal case. In later years I had less occasion for anaesthesia and limited my work to ether.

## THE MEDICAL SOCIETY*

By J. A. McCulloch, M. D.,
Nashville.

Kipling once said that there are only two classes of mankind in this world—doctors and patients. Since my audience is composed chiefly of the former class, I shall address my remarks to them in particular.

The members of the medical profession are generally regarded as a class of men who stand shoulder to shoulder in the various phases of their work. Experience has proven that this state of affairs is not only desirable, but essential to the members of the profession in connection with their work, and to their patients as well, and it may be stated, too, that the laity has given this idea of close co-operation on the part of the physicians of the country the stamp of their approval.

The idea of medical organization dates back to many years ago, and was only a natural result of the experience of our forefathers in the profession, in which the need of organization was so well recognized. Today is is generally admitted that there is no class of individuals who are bound together in a great profession more closely than are the physicians of the country. Any body of individuals organized for mutual benefit and counsel must of a necessity be of benefit to the various members of such an organization, and it is very probable that the members of the various organized associations throughout the country appreciate to the fullest extent their membership in these organizations.

The real purpose of an organization such as a medical society is to federate and bring together into one compact organization the entire medical profession of a given community, with a view to the extension of medical knowledge and to the advancement of medical science; to the promotion of friendly intercourse among physicians; to the guarding and fostering of their material interests, and to the enlightenment and direction of public opinion in regard to the great problems of state medicane, so that the profession shall become more capable and honorable within itself, and more useful to the public in the prevention and cure of disease, and in prolonging and adding comfort to life.

It should be easy to appreciate the value of the opportunity of the physicians of a community being able through their organizations to meet each other personally and to learn to know each other better. It is said that every man bears acquaintance, and this is certainly true of physicians generally.

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*Read at meeting of East Tennessee Medical Association at Maryville, Nov., 1921.

Since it is admitted that human life and health are the most valuable assets of the country, it is only natural that those of us who are charged with the supervision of the health of the citizenship of the country should be allowed the privilege of adopting the most practical methods at our disposal in order to successfully perform the highly responsible service that is required of us. Nothing short of our very best efforts are expected, and as a result, we should make the most of our associations together.

Experience has shown that by a united effort we are able to bring about results far more favorable than might be obtained in any other manner, and in our medical society we are given that opportunity. The value of the medical society is hardly to be over-estimated, as on it the whole superstructure of organized medicine is based.

It goes without saying that the members of the profession in every community should affiliate with some medical organization, beginning with their local society by all means; however there are men in every community who appear to be indifferent to the good that is to be obtained by actively identifying themselves with their local medical society. This indifference of the non-member to his fellow practitioner is often characterized by a like indifference to his community and its interests, and the usual results are that this kind of a man becomes selfish and self-centered, is critical of others, jealous of his fellow practitioner, and is apt to be carried along by the ship of state simply as ballast.

It is unfortunate that many good men get into that sort of a rut which leads only to the "drying up" period in their life, and oftentimes all on account of their indifference to everything except the almighty dollar. It is for this particular type of a man that the medical society can perform a real service. If this man can be induced to take one night off each week, and spend this with his fellow-practitioners, taking an active part in their deliberations, he will soon be found to be giving more time to study and reading, will be found endeavoring to put into practice the newest and most approved methods of combatting disease, his attitude towards his fellow-practitioners will have changed, and he will in fact be found to have taken a new vision of life insofar as his work is concerned. One of the results that is to be obtained from awakening a new interest in such a man is that other members of the profession with whom he comes in contact are also shown to be developing a new interest in the society's work, and it is not an unusual thing to see a real revival of interest among the physicians of a community in connection with their work.

These and many more good reasons might be given to justify the existence of the medical society; however, in the opinion of the writer, the general idea of developing and improving the social relations among the men of the profession is of so much importance and means so much to the members themselves from this view-point alone, that that should be sufficient incentive to enthusiastic endeavor to bring about such results.

Looking back over the years that we have been privileged to practice our profession, it should be with a feeling of intense gratitude that we have been permitted to be active servants, working in the interest of those to whom we are called to administer. We should appreciate the fact that we have the opportunities that come to us in our everyday work of doing something not only for the sick and suffering, but for each other, thus endeavoring to make the burden of our work lighter, and being able to derive a real pleasure from its performance.

We should work together and not singly, because singly we are weak and incapable of any great accomplishment, but working together we are often able to accomplish what is sometimes called the impossible.

We should study and practice our profession to engender as a principle of life the thought that our brother practitioner is an active co-operator and be willing to give to him the same consideration that we would ask for ourselves.

We should have a fixed purpose in our work and life, and be willing to shoulder our share of the burden of the day, and not be simply standing by and looking on, but with Whittier, endeavor to

"Live for something, have a purpose,
And that purpose keep in view.
Drifting like a helpless vessel,
Thou canst ne'er be true.
Half the wrecks that strew life's ocean,
If some star had been their guide,
Might have now been riding safely,
But they drifted with the tide."

# CHAIRMAN'S ADDRESS—SECTION OF OPTHALMOLOGY AND OTOLARYNGOLOGY.*

By E. C. Ellett, M. D., Memphis, Tenn.

I would like to first express my appreciation of the honor you have done me in selecting me as Chairman of this Section. In the preparation of the program and in the conduct of the sessions I will endeavor to discharge the duties of the position to your satisfaction.

With the assistance of the Secretary and the cordial co-operation of the members of the section, there will be brought before you a series of subjects for the selection of which the secretary and I are responsible, which present points still undecided, and symptoms upon whose interpretation and relief we are not wholly agreed. In the free interchange of opinions and comparison of experiences, we are apt to derive useful information. As our program is long and our time short, I will occupy myself with a brief reference to some of these questions.

Our guest will speak on a subject closely linked to the very important question of "increase of intra-ocular tension." Different observers, working with equal conscientiousness have been unable to reach similar conclusions within the eye, measured in m. m. of mercury, regarding the normal amount of pressure and of the variety of tonometers put forward. the ones which have found most favor do not give parallel readings in all cases, a state of affairs for which there is no explanation, and which can easily lead us into error and disaster. Not only must the instruments be standardized, but the method of their employment must be standardized as well, in order that our observations can be profitably compared.

Closely related to the question of the measurement of the intra-ocular tension is the choice of a method for its relief. When men of the widest experience differ on this important question, how much more at sea are those of smaller experience apt to be when the momentous question arises as to what to do. A comparison of our experiences, honestly stated, will certainly help us in reaching a wise decision.

The ever-present discussion of methods of cataract extraction has borne much good fruit. While the exact technique of the operation itself varies with different operators, questions of selection of cases, prognosis, preparation, and after treatment have settled to a fairly uniform state, and beyond that it is not likely that we will go, since each man will follow the method at which he is most adept and which he can do best. Occasionally discussion of the methods employed is a good way of keeping before us all of the different procedures and their advantages.

Some of the **terra incognita** of the organs upon which we practice is yielding to the advances of our explorers, and the sphenoid sinuses, long protected by their inaccessibility and invisibility, are now within the reach of our diagnostic and therapeutic measures, with most gratifying results as regards relief of symptoms. Since there is still some uncertainty about the best method of approach, as well as symptomatology and significance of infections in this region, a place was made for a paper on this subject.

It is a great reproach to our specialties that pathology and therapeutics are alike unsatisfactory in all that concerns chronic deafness. Some cases seem clear enough, but when one considers the number of cases of this character that are treated and subjected to operations without any benefit, it would seem that the limit of our therapeutics is not clearly understood. If it must be admitted that the majority of these conditions are beyond our help, we and the patients must face the fact, and not bring reproach to ourselves by erroneous prognoses and futile efforts at relief. Scarcely second to the loss of a precious sense is the maddening subjective noise to which these sufferers are doomed to listen, and it is difficult to arrive at a clear conception of the cause of this tinnitus, and at least as difficult to secure any relief from it. A comparison of our experiences in these matters must be of benefit.

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*Read before Section of Ophthalmology and Otolaryngology at Annual Meeting of Tennessee State Medical Association at Nashville, April, 1921.

Laryngology has been defined as "tons of tonsils." At the present rate of consumption, the crop must be conserved, or we will have a famine. It is evident from a perusal of the reports of special hospitals that the greater portion of the laryngologists' working moments are devoted to the removal of this more or less offensive organ. Of a list of 1,941 throat operations in one institution, 1,841 were tonsillectomy, and a similar proportion exists in some private statistics which I have recently seen, namely, 635 tonsil operations out of a total of 793 ear, nose and throat operations. Tonsils have certainly solved the question of the H. C. L. for those who deal with them, but we do not hear much about results of their removal on the patient. I have asked several of my colleagues to tabulate their findings in a series of such operations, in order that we might have a standard by which to judge a given gland, as well as some definite idea of what we may expect from its removal, but they were too busy taking them out to attend to a matter of detail like that. The fact is that we see many people who have had tonsillectomies for reasons that were not clear to them, and with results whose benefits were not apparent. We hear it glibly stated that they were "full of pus," the observer not knowing or caring to know that the substance which comes from the crypts is not pus at all, that the found elements are not leucocytes, but epithelial cells, and can be expressed from practically every tonsil. I have seen cases in which tonsillectomy was recommended for vernal conjunctivitis for aneurism of the aorta, for recurrent carcinoma of the neck and all the way stations. It is high time to take stock and see "where we are at."

There are some other matters not on our program to which I would like to invite your attention, as possible topics for profitable discussion for future meetings. One of these is the question of the ophthalmoscopic study of the macular region. The difficulties of examining this region, even with a dilated pupil, are familiar to us all, and it seems to me that the finer changes are not sufficiently understood and generally enough recognized. One is often at a loss to decide in his own mind if the picture is pathological or not, since changes of pigmentation, light streaks, which may or may not be lymph reflexes, and such slight changes make it hard to separate the normal from the abnormal. There is much profitable discussion to center around the test case, since refraction is an art wherein few attain the desired proficiency. Closely related to this is the subject of retinoscopy, about whose value and possibilities there is not yet entire agreement. The balance of the extraocular muscles is a subject upon which a unanimity of opinion as well as a standardization of practice would be most desirable, since we are certainly very far from it now.

More easily solved are some errors into which we fall and drag others by a looseness of thought and speech in our nomenclature. I especially have in mind the use of the term "granulated lids." To the laity this usually means marginal blepharitis, but they and they general practitioners apply it very commonly to most external eye diseases. Even some oculists add to the confusion by so calling follicular conjunctivitis, and in this way helping to befog the already cloudy issues that have arisen between the U. S. P. H. S. and some outside observers. To my notion, "granulated lids" should mean trachoma and nothing else, though there are of course many other conjunctival affections characterized by what may or should be called a "granulation." It is much like the state of affairs that existed years ago when people used to speak of "diphtheritic sore throats," to the end that much avoidable confusion arose, of which we still occasionally hear. Now that the issue has arisen so sharply and in so many places, as to what is and what is not trachoma, let us all strive to make it clearer by exactness of speech, and at the same time, let us all contribute, as occasion arises, to settle this controversy over the subject, not by debate and abuse, but by thoughtful and careful examination of the cases over which this difference of opinion has arisen. And why not discard this confusing term altogether, and let it go the way of that other equally objectionable one "catarrh," which never served any good purpose, but was long a cloak for ignorance.

Let me again remind you that by no stretch of the imagination can these random remarks be worthy of the term "address," but are merely meant as an introduction to the excellent program, to the opening numbers of which your attention is now invited.

# VERTIGO*

By J. J. Shea, M. D., Memphis.

Vertigo is a subjective sensation of a disrupted relationship of one's own body to surrounding objects in space. In other words, it is a disturbance of one's equilibrium. Hence a study of vertigo must be based upon a study of the method of equilibrium. All conscious sensations are cerebral. The brain perceives the combined information from the muscle-joint sense, the sight and the static-kinetic sense and thus becomes conscious of one's relationship to the object in space about it. The tabetic is deprived of the muscle-joint information and staggers, but is seldom dizzy. The sight by the power of fixation gives information as to the relative position of objects about us, and when there is an imbalance of the external muscles of the eyes the brain is confused because the informations from the two eyes do not coincide. Here I wish to correct an erroneous impression which has gained cognizance in medicine, that the eye is often a cause of vertigo. Only when the external muscles are not working in symmetry does it produce vertigo, still the vast majority of cases referred to us for examination as to the cause of vertigo are sent for errors of refraction. This then leaves the static-kinetic sense as the main source of knowledge of equilibrium; that is, static-kinetic is truly a special sense and may be proven by its conforming to the requirements of a special sense, i. e., an organ for the reception of the stimulant, a special nerve for the transmission of the stimulant and a localized area in the cortex for the perception of the stimulant. The labyrinth of the ear is the organ, the vestibular branch of the eighth cranial nerve is the special nerve and the tempero-parietal is the localized area of cortex. The labyrinth may be considered to be composed of three semi-circular canals and two reservoirs. Into the lumen of these canals are sensitive nerve endings which will interpret the movements of the body with regard to space.

Inasmuch as there is a special organ, nerve and brain area for this sense, it is only through the study of this organ and its nerve tracts that a proper diagnosis of the cause of the vertigo may be reached. We all know that an intoxication, either intestinal or otherwise will produce vertigo, but how? By its action on this special organ and its nerve tracts. Vision may be reduced by intoxication, but only by the action of the toxin on the organ of sight or its nerve pathways.

If we consider the information from each labyrinth as reins upon whose tension we are guided, it is readily seen that when there is an unequal pull it will spin us instead of driving us straight. In time we can accommodate ourselves to this information and go steady, but as soon as there is another upset we are confused by the new imbalance and have the subjective sensation of vertigo. One's experience at sea really exemplifies this. The rocking of the ship makes us sea-sick until the brain accustoms itself to the rapid change of information and in time we become "sea-dogs."

Barany received the Nobel prize for the work he did on the relation of the vestibular system to medicine and through the efforts of the men connected with the Neuro-otological Department of the University of Pennsylvania and the Medical Section of the Aviation Corps of the Army, this work has been carried on until now no case has been properly studied, whose symptom complex includes vertigo, without a thorough Barany test. Through these tests the eighth nerve may be tested, the three crux of the cerebellum, the medulla and pons and even a portion of the cerebrum. By this system the integrity of these pathways may be tested and lesions thereby located in the areas, which before were hidden fields from research.

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*Read at Annual Meeting of Tennessee State Medical Association at Chattanooga, April, 1920.

Vertigo may then be of two great types—The first where the system of equilibrium is intact, but their correct information is disturbed due to the action of toxins on the organ or its nerve pathways. This toxin may be temporary or permanent—alcohol or the viris of syphilis. In this class the Barany tests will show the pathways open, but some increase or lessening of the normal reactions or an unequal information from the two sides. The second type is where the Barany tests show a blocking or absence of passage through one or all of the tracts and the vertigo is due to an organic lesion. Of the first class the intoxications of the intestines, kidneys, blood or infections are the most common, while under the second type, may be placed the destructive lesions of the labyrinth and its nerve, tumors or abscesses of the brain. In short, the tests consist of measuring the two reactions produced by stimulating the labyrinth. If I stimulate the labyrinth a nystagmus is produced in the eyes in the same plane of space as the movement of the fluid in the canals and a vertigo of like quality. The vertigo may be measured by either testing the past pointing of the individual or his falling reactions. After the tests have been made a study of the results with the proper interpretation of them will unfold the cause of the vertigo. No one has a right today to presume that so serious a symptom as vertigo is caused by any one factor, without first having a Barany test correctly made and interpreted upon his patient.

## Tests.

A thorough examination of the nose, throat, tonsils and sinuses is made and recorded for further use in the consideration of any pathology afterward located. The usual ear tests are made to determine the condition of the vestibular branch of the eighth nerve. In order to determine the condition of the labyrinth system as a unit, we have the rotation tests; and in order to test each canal separately, we have the caloric or douching tests. We first determine if there is any spontaneous nystagmus, or if it may be produced by the changing of the position of the eyes. This is best made by having the patient fix his vision on a distant object and turning him first to the left (eyes go to the right), then to the right. Next, while retaining the position of the head, have him look up as high as he can and then down to the floor in front of him. The rotation test is made by placing the patient in the Pennsylvania chair, adjusting his head properly (30 incline forward) and having him close his eyes Then the patient is turned to the right ten times in twenty seconds and brought to a stop. He is commanded to open his eyes and fix his vision on a distant object, still retaining the correct position of the head. A stop watch is the only reliable means of timing the duration of the nystagmus. We observe the slow component and the fast component, as likewise their amplitude. The patient is turned in the opposite direction ten times in twenty seconds. Next the patient is demonstrated the proper way to test the touching and his spontaneous touching is recorded. With the eyes closed, the patient is turned to the right ten times in as many seconds, which is twice the rate of the previous turning, and brought to a fixed stop. His touching is rapidly tested, first his right, then his left, and back and forth until he touches with both hands. These are recorded in inches to the right or left. The tests are again repeated after he is turned in the opposite direction.

The douching tests are made by having the patient sit in the chair with the head in the proper position and the ears are irrigated with water at 68 F. With the stop-watch, the time is estimated from the beginning of the flow until the first twitch occurs. This is noted and the time necessary for the production of the nystagmus and should be 40 seconds. We allow the water to flow a while longer in order that the labyrinth may be thoroughly cooled. A notation of the character of the nystagmus is made and the patient told to close his eyes. His touching is again tested, noting the direction and distance of his miss. These tests are for the vertical canals.

The position of the patient's head is changed so that the horizontal canals may come into the vertical planes and this is obtained by having patient's head held 60 backward. The nystagmus is noted as to direction and amplitude. He is again told to close his eyes and the past pointing tested of the horizontal canals. When the horizontal canals cause the nystagmus, the direction of the movements are in the same plane of space as the canals at present are in; that is when the canals are horizontal they are in the horizontal, and when the canals are in the vertical plane they are from side to side.

That these tests should be done by an otologist is evident, inasmuch as a functional examination of the hearing and the labyrinth is limited to the area of which he is best informed.

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### DISCUSSION ON THE PAPER OF DR. SHEA.

Dr. Hazle Padgett, Nashville: As a symptom, vertigo is mingled with innumerable physical conditions that are apparently not connected with the ear. Dr. Shea has made a statement that altogether I cannot agree with, and I think there are many practitioners present and some neurologic men who cannot agree with him when he stated that no case of vertigo is thoroughly studied until a Barany test is made.

It is all well and good to deal in scientific terms: It is all well and good to get explanations as near the truth of the clinical symptoms and physical condition as we can, but our ultra-scientific ideas sometimes can carry us to a point where we lose the golden oportunity for benefitting and curing our patients.

Seeing as much of mental and nervous diseases and disturbances as I do, I see a great many cases of vertigo. I am not criticizing the Barany test, I want you to thoroughly understand that. It is a scientific method I am thoroughly in accord and in sympathy with, but how often do we have cases of vertigo, first one disturbance, then another, and to emphasize what I am saying, I will venture the remark that in nine cases out of ten, vertigo, as the general practitioner sees it, is due to what we look upon as general toxic condition. What is the relationship between the toxicity and nerve terminals in and around the ear, is a question that future investigation must decide. A patient comes to the family physician; he has been overeating and he is toxic. He is seized with vertigo, and when you limit his eating, and give him a good, strong purgative of some kind, all the vertigo disappears.

That class of vertiginous disturbance covers about nine-tenths of the vertiginous attacks that the medical profession have to deal with. I am not talking about organic diseases of the brain, organic diseases of the cerebro-spinal axis; I am not talking about vascular disturbances in the brain; I am not talking about organic diseases in the auditory apparatus that gives you chronic vertigo, that will demand the application of every scientific means and method we have at our command and disposal to find out what it is. All I have said has been simply brought out by the statement that Dr. Shea made that no case of vertigo is thoroughly studied until a Barany test is made.

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Dr. J. J. Shea, Memphis (closing): I am very glad Dr. Padgett said something about the Barany Test. I have been preaching about the Barany test for some time. This is the second time that I have appeared before the State Association, last year before the nose and throat Section. I started in 1917 before the Southern Medical Association by reading a paper on the labyrinth and outlined what the aviator requires of this special sense. I did not mean to convey the impression that the Barany test is essential in the ordinary cases, that come to you with mild symptoms of vertigo. Usually the general practitioner has already given the patient a series of cathartics and has regulated his diet. I had in mind the cases that come up for serious consideration where vertigo is the principal symptom or where vertigo is the persistent symptom. Usually these cases have been purged too vigorously and they have been dieted to no avail. It is in these cases really that up to this time we have had no way of seeing light. We have been at sea; we did not know where we stood. If the patient says, "Doctor, I am progresively becoming blind,' you would not try the use of purgatives, but you would send that patient to an oculist and have his eyes examined. So with the cases where vertigo is the persistent symptom, do not continue your cathartics and diet, but send them to one qualified in making the Barany test in order that a proper understanding may be obtained of the organs involved.

# TONOMETERS AND TONOMETRY.*

By John Green, Jr., M. D., F. A. C. S.,
St. Louis, Mo.

It is by no means certain who first recognized variations in the degree of hardness of the human eyeball. Possibly a patient suffering from unilateral acute glaucoma, in an effort to alleviate the agonizing pain, may have pressed upon his eyeballs and thus noted that the inflamed eye felt harder than its fellow. If such an observation were transmitted to the attending physician, it probably made no impression upon him or was disregarded as a vagary of the sufferer.

Priestley Smith, in his book on "Glaucoma" (1878) credits MacKenzie (1830) with having first called attention to the abnormal fullness of the eye to the touch. Sir Wm. Bowman, in one of a series of lectures delivered at Moorfields, in 1847, stated that "the eyeball has naturally a certain tension. . . It gives a tight or resisting feel to the finger applied upon it, and the exact degree of this tension it is essential for you to know. . . . that you may be able rightly to appreciate by touch the departures from the healthy standard of tension which occur in the course of several diseases." Again in 1862 Bowman described the exact procedure with finger tonometry. He stated that he had found it possible to distinguish nine degrees of tension for which he had devised signs. He used finger tonometry constantly to ascertain the tension of the eye.

We will all readily admit that if Bowman could distinguish nine different degrees of tension by digital palpation, he must have been possessed to an unusual degree of the **tactus eruditus.** Subsequent users of the method have felt themselves skilled if they could distinguish seven degrees—designated by the symbols T. N., T—1, —2, —3, T+1, +2, +3.

It is probable that comparatively few ophthalmologists possess or can acquire a tactile sense sufficiently refined to distinguish with certainty the difference in the hardness of the eyeball represented by T+2 and T+3; even more dubious will be comparative estimations of minus tensions. Even if we assume that educated fingers can invariably differentiate between T. N. and T+1, there remain intermediate pressures which cannot be measured, and pressures may have diagnostic and prognostic significance. Furthermore, one can never be sure that the T+1 of Dr. A. represents the T+1 of Dr. B. Nor is it at all certain that Dr. A's T+1 will, day in and day out, represent the same degree of intraocular pressure. Considerations such as these early led to attempts to construct instruments for determining the intra-ocular pressure, which should be free from the inaccuracies of digital tonometry.

The devices used in instrumental tonometry are of two kinds—impression tonometers and applanation tonometers. Impression tonometers either measure the depth of the impression made by part of the instrument or register the dimpling of the globe produced by a given force. Applanation tonometers give an estimate of the intra-ocular pressure through flattening of the corneal or sclerotic curve. In the use of instruments of this kind, accuracy depends upon an exact flattening of the area pressed upon, that is, the plane surface of the tonometer plate must be in perfect contact with the surface of the eyeball.

The principle of applanation tonometers depends upon the fact that:

p.=J+N where

p.=The amount of pressure applied to the exterior of the eyeball.

J.=The component of the intra-ocular pressure acting on a given area and

N.=The vertical component of the tension of the walls acting upon the same area.

The first ocular tonometer was demonstrated by Graefe[2] in 1863. He employed a metal rod which was brought into contact with the eye by means of a lever which carried at its extremity a variable weight. A scale indicated the degree of pressure which the rod exerted upon the eye. The instrument was not practical because it required absolute immobility of the eye, only possible (at that time) under general anaesthesia. A little later, Hamer[3], Donders[4], Dor[5], and Stroh[6], designed somewhat similar instruments, but all had one great defect, viz., that it was almost impossible to determine the exact moment when the pressure of the instrument should cease, and for this reason the readings were inconsistent and often inaccurate.

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Stimulated by these partially successful efforts, others set their ingenuity to work. Among these may be mentioned von Monnik[7], (1870), Weber[8] (18737), Snellen[9] (1873), Priestley Smith[10] (1879), Maklakow[11] (1885), Lazerat (1885), A. Fick (1888), Koster[14] (1895), and von Helmbold[15] (1896). Most of these designers never got their instruments beyond the laboratory stage, and hence their use was limited to a comparatively few. The instruments of Maklakow and Fick, however, being simple and readily applied, had a certain following.

A modified Maklakow tonometer is said by Priestley Smith to have many merits. It consists of a metal rod, terminating at either end in a cylinder. A millimeter scale is engraved on the glass end surface of each cylinder. The entire instrument weighs 10 grammes.

Method of use: The cornea is oiled as thinly as possible. By means of a holder the instrument is gently lowered to the cornea so that it stands on it vertically. The pressure is solely that due to the weight of the instrument. The polished surface of the glass takes a well defined circular print of the flattened area of the cornea. The diameter of the print is read on the scale.

In the Fick instrument a small, flat disk the tonometer plate, is connected by a rigid rod to a spring which is attached to a T-shaped standard. To the upper end of the spring is affixed a pointer which moves along a scale. The plate is brought in contact with the sclera and pressure is applied until the sclera under the plate flattens. The reading is then taken.

The year 1905 marks the beginning of serious instrumental tonometry with the advent of the admirable instrument designed by Schiotz[16]. The instrument consists of a hollow metal cylinder terminating below in a footplate. To the upper end is attached an inverted U-shaped standard which is surmounted by a T-shaped arm, the upper end of which carries a scale. The cylinder slides in a collar to which are attached two up-rights which serve as a means of grasping the instrument. A stylet 3 mm. in diameter passes through the cylinder. Near its upper end it is threaded to receive a weight and terminates above in a blunt point.

In use, the instrument is gently lowered until the stylet comes in contact with the holocainized cornea. As the stylet rises its upper end touches a hinged arm, to one end of which it attached a pointer. As the footplate comes in contact with the cornea, the pointer comes to rest and the pressure is read off according to a chart provided by the maker. Higher pressure require heavier points.

The immense advantages of this instrument over any and all that had preceded it were quickly recognized, and it soon became an indispensable adjunct to the equipment of the progressive ophthalmologist. By 1910 a number of papers concerning the result of the use of this instrument had been published. A convenient modification was designed by Gradle[17] in 1912.

Stephenson[18], in collaboration with Wolinski, designed an instrument which he described in 1911. Neither this, nor one designed by Coburn[19], has been found either accurate or practical.

An exceedingly simple instrument and one which in practiced hands gives indications of value is that devised by W. N. Souter.[20] It gives direct readings which are taken with the patient in the up-right position. The instrument is about the size and weight of a fountain pen. It is made entirely of metal and consists of a light tubular body with side finger grips and an open scale. A delicate steel rod is connected with a spring contained in the body. The end of the rod is brought in contact with the cornea, and pressure is made until the corneal surface shows a slight dimpling. A stop is provided near the forward end of the casing on either side for temporarily retaining the rod at the moment of dimpling. The pressure in mm. Hg. is then read off on the scale.

In 1914 W. McLean[21] presented a new tonometer which, while embodying many of the features of the Schiotz, has some very important differences. The instrument consists of a barrel with its footplate. Extending above from the upper part of the barrel is the base or frame of the instrument. A hardened steel plunger passes from the center of the footplate through the barrel and actuates a pivoted steel anvil at the upper part of the instrument. Suspended from the anvil is a steel needle which indicates the intra-ocular pressure in mm. of mercury. Two knurled finger pieces serve as a support for the instrument when in use. The lower end of the steel plunger is supported by the ends of three hardened and ground steel bearings placed 120 degrees apart midway from the footplate and the top of the barrel. The cavity of the barrel is about 2 mm. larger than the size of the plunger, and the steel bearings support the plunger so that there is no "drag" produced by capillary attraction of any fluid which may have remained on the cornea when the instrument is placed there for a reading. If, when the tonometer is placed in position, the indicating needle oscillates as it often does synchronously with the heart beat, the lower limit of the oscillations should be taken as the intra-ocular pressure.

McLean experimented on a large number of recently enucleated human and animal eyes and his results led him to conclude that the pressures indicated by the Schiotz and other tonometers were from 12 to 25 mm. Hg. less than the actual manometric pressures. He therefore calibrated his tonometer in accordance with the instra-ocular pressures as determined by his own experiments.

Everyone who became the possessor of a Schiotz instrument immediately recognized the great superiority of this method of estimating intra-ocular pressure, and the more enthusiastic rushed into print with claims for exactness and accuracy which the author himself did not assert.

In his first papers Schiotz used mercury equivalents in speaking of the deviation of the pointer on the scale, but later, realizing that his experiments were too few and possibly not having entire confidence in their accuracy, he preferred to indicate differences in pressure merely by degrees of deviation accompanied by a statement of the weight used. Certainly, the latest investigations, especially those of McLean, have thrown great doubt on the accuracy of the readings (as expressed in mm. of Hg) of the Schiotz tonometer. There can be no objection however to continuing this form of notation provided one does not use the figures in terms of millimeters of mercury. For instance, if we say the tension, (Schiotz) measures "18," without adding "mm. Hg." we have a perfect right to compare that measurement with a subsequent one in which the reading indicates a higher intraocular pressure than the first, although neither may represent the intraocular pressure in millimeters of mercury. As has frequently been pointed out the great value of the instrument lies in its ability to give us comparative measurements of the same eye from hour to hour or from day to day, thus affording a much more accurate conception than ever before of the variations in intraocular pressure.

As Jackson (22) has well said "the practical value of an instrument of diagnosis rests on two things,—the data that it yields and our understanding of what these data mean. We can not fully understand what a test is worth without some definite idea about the limitations of its reliability and usefulness. To find out what the tonometer can not do and what false conclusions are likely to be drawn from its indication is to add to its practical value."

Jackson calls attention to the fact that the tonometer really measures the impressibility of the eyeball and points out some of the factors interfering with the accuracy of the measurement. A reading can be accurately made only when the full weight is borne by the rod and not by the instrument itself. The indentation made by the rod varies in shape with its depth, with the intraocular pressure and with the curvature, rigidity and thickness of the cornea. In normal eyes the corneal center may vary in thickness from0.6 mm. to 0.9 mm. It is necessary to have the corneal plate of the same or nearly the same radius of curvature as that of the corneal surface. In an exmniaation of 2,000 eyes by the Javal-

Schiotz ophthalmometer Jackson states that approximately 63% had radii of curvature of form 7.5 mm. to 8mm. A tonometer, such as the Gradle-Schiotz, with a base plate having a radius of curvature of 7.6 mm. would fit the cornea accurately enough in 4/5 of all eyes. If the foot plate is flatter than the cornea it comes in contact with the cornea only near its center. If the surface of the base has the same curve as that of the cornea, the two surfaces are in contaet and remain so, except as the indentation of the cornea separates them. With an unusually flat cornea the edge of the base plate rests on the cornea and the rod drops an appreciable distance before touching the cornea, and the tension, as indicated by the pointer, is apparently lower than it actually is. In unusual convexity of the cornea the rim of the base plate can not touch the cornea at all, and the tension is recorded as higher than it actually is. Jackson relates the case of a woman of 31, who had been told that she had incipient glaucoma on the basis of a reading of the tonometer which was interpreted as 32 mm. of mercury. Examination with the ophthalometer showed a corneal radius of only 7.1 mm. which preferably counted for the high reading. He then gave his opinion that she had no glaucoma, took her off miotics and several years later found the eyes perfectly free from any evidence of this disease.

The use of the ophthalmometer preliminary to the tonometer will show any irregularity in the corneal surface. In the case of high astigmatism where the radius of curvature in the two principal meridians may differ as much as 2 mm. one will not accept too literally the tonometric reading. If the instrument is placed eccentrically, that is, with the rod parallel but not coinciding with the visual axis, it is equivalent to placing the footplate on a flat cornea and there will be a tendency to underestimate the intraocular pressure. If the tonometer be placed at the center of the cornea, but inclined so as to make an angle with the visual axis, the effect will be the same as though the tonometer were placed on a short radius of curvature and the tendency will be to overestimate the intraocular pressure.

Priestly Smith has stated "that when a tonometric observation is recorded it is the reading and not the supposed equivalent of millimeters of mercury that should be stated." He points out that increased hardness of the eyeball may be due to changes in the sclera and cornea, independent of any change in intraocular pressure. He found that there was a great decrease in the impressibility of a pig's eyeball after it had lain for twenty-three hours in a solution of formalin. The manometer showed that the intraocular pressure was the same (25 mm. Hg.) before and after the immersion, yet the reading (Schiotz) had risen from 22.5 to 61. He draws attention to the increased hardness of the lids when inflamed and asks, why may not the inflamed sclera give rise to increased hardness of the globe? He states that the degrees on the tonometer bear no constant relation to intraocular pressures, but that there is an "average" relation, that is, each degree on the average of many eyes has an equivalent of millimeters of mercury. The method of obtaining average equivalents is by the use of the tonometer and manometer simultaneously. Method: A water manometer is connected with the eye by a hollow needle entering the vitreous. A known pressure is established in the eye. The manometer placed on the cornea and its reading recorded. The reading corresponds to that pressure in that eye. Other pressures are then established and a reading is obtained. This is repeated on a number of eyes and the average of the readings obtained for each pressure is found.

Schiotz' data was based on eight excised human eyes and he found a varying relation of tonometric degrees to intraocular pressures. Smith very appropriately remarks that if more eyes had been used the average might have been different and asks whether these findings on dead eyes are strictly applicable to living eyes? Schiotj himself recognized these uncertainties and offered his figures as approximate equivalents and "in his subsequent work did not translate his findings into millimeters of mercury." Smith's experiments on excised pigs' eyes and on human eyes in situ after death led him to believe that Schiotz had underestimated the intraocular pressure at ordinary levels by about 5 mm. Hg.

McLean states that Wahlfor's experiments indicated a normal intraocular pressure of 26 mm. of mercury. McLean affirms that the manometer in connection with the interior of the eye and with perfect technique "is the only method known today of obtaining absolutely accurate estimations of intraocular pressure." His experiments were conducted with the greatest care. He made changes in the details of the manometer which probably made for greater accuracy. For instance, he used a 2 mm. needle in the vitreous because he found that a smaller caliber needle got clogged. He also interposed a needle valve in the lumen just far enough back to compensate for the volume of metal in the eye. In making manometric-tonometric tests, he encloses the freshly enucleated eye in a delicate rubber sheath which acted as a reservoir to contain a small amount of saline solution, thus preventing the eye from losing any of its resiliency. McLean, on the basis of tests of over 200 enucleated eyes, placed the lower limit of normal intraocular tension at 22, upper limit at 40.

What is the normal intraocular pressure? Obviously there can be no final answer to this question until all experimenters reach concordant results in manometric measurements of a large number of eyes—and not merely enucleated eyes, but living eyes in situ. It is clear enough, however, that the normal intraocular pressure is no absolutely fixed quantity. Probably the most extended study on this question was made by Cridland[23] who used the Schiotz tonometer on 1,000 normal eyes. His patients ranged from 7 to 88 years. Curiously enough he found tension highest in the first decade. In 21.2% there was a difference in the reading in the two eyes. Tension was slightly higher in females than in males . He sets the low limit at 11.9, high limit 28.55 (average 19.58) for normal intraocular pressure.

Careful tonometric studies have greatly increased our knowledge of the variations of intraocular pressure in the same eye at different times and under different conditions. Thus Pissarello[4] found a tidal periodicity in the rise and fall of glaucomatous pressure which was highest at mid-day and lowest in the evening. After ingestion of food the tension was always lower. Pissarello thinks that in every patient with glaucoma tonometric readings should be taken at intervals during the day and charted after the manner of thermometric readings. If operation is decided upon, it should be performed at that time of the day when tension is lowest.

Of the relation of the general blood pressure and the intraocular pressure, Moore[25] says, that such variations as occur in the tension of the globe are not caused by or associated with a like variation in blood pressure." These conclusions support the conclusions of other recent workers.

Moore finds that the pulse wave is not eliminated by high intraocular pressure. Craggs and Taylor[26] investigating the relation between systemic blood tension and raised intraocular tension found that in 75 cases of glaucoma, average age 49, the average intraocular pressure was 54 mm. of mercury. In cataract cases (average age 53) the average intraocular tension was 15 mm. of mercury and the systemic blood pressure averaged 144. "From this one would be led to conclude that high arterial tension is not a necessity and apparently not even a leading factor in the etiology of glaucoma."

May I offer a few practical suggestions in the use of the tonometer? Some colleagues have stated that many patients seemed reluctant to submit to tonometric examination. I have not found this so. If there be any such difficulty, the fault probably lies with the examiner, his assistant or nurse who, by elaborate preparations, ushering the patient into an operating room, talking in low tones, conveys the idea to the patient (who is all ears and highly impressionable) that he is about to undergo something formidable. Make no more fuss about the examination than the internist does when he applies the stethoscope to the chest. Just before the instrument is applied, a few words of explanation and reassurance will assure a quiet and cooperative patient.

I use 1% holocain solution, repeated twice. The patient lies on his back on a table with the head slightly higher than the feet. The nurse stands on the patient's right and with her left hand draws down the lower lid. the upper lid is controlled by the examiner's right hand, he holding the tonometer with his left. The patient is then directed to look at the forefinger of the nurse's right hand, which is so placed that the patient's gaze is directly vertical. The patient is cautioned to keep both eyes open. In the case of a deviating non-fixing eye, its visual axis is brought to the vertical by appropriate rotation of the fixing eye which continues to look at the nurse's forefinger in whatever position may be necessary. The position of the index on the scale is read by the nurse. The average of three readings is taken.

I can not better illustrate the usefulness of the tonometer than by recounting a few case histories in which the instrument has thrown light on certain clinical processes.

## Case Reports.

Case 1.—L. A. R., male, age 65, consulted me Sept. 23, 1919. He had observed some defect in the left eye for a year or more, but vision had become seriously impaired only in the two months preceding my observation. R. V. +2.5 6-4 pt.

L. V.—Direction of hand motion at 30 cm.

Ophthalmoscope showed an extensive separation of the retina (left). The large folds met in the middle line, obscuring the disk. Above, a few fundus details could be observed. Trans-illumination showed no shadow. The field was entirely lost above and concentrically contracted below. RT 13. LT 8 (Schiotz).

The diagnosis seemed to lie between simple separation of the retina and separation due to tumor. The patient was seen in consultation by Dr. Henderson, who suggested scleral puncture in the hope that with the withdrawal of the sub-retinal fluid, the retinal folds would recede sufficiently to enable one to determine whether or not there existed a tumor at or near the posterior pole. This maneuver proved successful, as, after the second puncture between the internal and inferior rectus, a well defined yellowish tumor mass situated just to the nasal side of the disk came into view. Examination of the enucleated eye revealed a leuko-sarcoma of the choroid at the indicated site.

Comment: This and a somewhat similar case seen several years ago, taught me that the tension in some cases, at least of intraocular growths, is sub-normal, and hence, that we cannot rely upon tonometric evidence in differential diagnosis between simple separation of the retina and that due to the retro-retinal growths.

Case 2. H. C., male, age 30, presented himself Nov. 19, 1920, with a central keratitis (left eye). As the case progressed, it became more and more evident that I was dealing with that very intractable disease, keratitis disciformis, a deeply situated, centrally located, well defined, infiltrate which showed no tendency to heal under ordinary measures (atropine, dionin, hot saline irrigation, etc.) Wassermann, negative, V. Pirquet positive, hypertrophic rhinitis with deflected septum. Several abscessed teeth were extracted. His physician reported his general condition excellent. At first the eye was irritable, rather than painful. On Dec. 1, he complained of pain and examination showed signs of uveal involvement—deposits on Descemet's membrane, iritic adhesions. R. T. 18, L. T. 33.

Following Week's suggestion that keratitis disciformis might be tubercular, the patient was put on tuberculin B. E. in increasing doses. Tonometric readings were taken every three days. Tension remained moderately elevated (it never rose above 36, however). Eventually the lesion broke down centrally and a central necrotic mass could be lifted out. After perforation, the lesion rapidly healed without anterior synechiae. The eventual outcome bids fair to be good, but with a fairly central condensed scar.

Comment: Rise of tension with pain occurring in the course of a keratitis may indicate the development of an anterior uveitis. If this complication has actually arisen, it does not call for the abandonment of atropia (as the increased tension does not indicate the development of glaucoma), but for the continuance of this drug, repeated sufficiently often to keep the pupil well dilated. With the subsidence of the uveitis the tension will fall to normal.

Case 3.—L. B., age 56, referred to me by Drs. Love & McNeill, Nov. 26, 1920. He stated that left vision was gone and right vision was gradually failing. He arrived with the diagnosis of glaucoma which I had merely to confirm. RV 6-12+2.25+.25 Cx 180 6-6. LV P. L. Ophthalmoscope showed typical glaucoma cups with atrophy. Right field contracted to within 10 degree circle and up temporally to within the 20 degree circle up and nasally, and to within the 40 degree circle downward. Schiotz R. T. 47, L. T. 62..

One hour after using esserin Alk. in castor oil (gr. 1 ad Oz. ½). R. T. 21, L. T. 41.

Given philocarpine muriate 1%, four times a day and oil eserin 1-240 at night. After three days, R. T. 16½, L. T. 21.

On stopping the miotics for 24 hours R. T. 29, L. T. 43. One hour after oil eserin 1-240, R. T. 24, L. T. 31.

Jan. 25, 1921, R. Field maintained. While under the influence of philocarpine (1% solu tion used two hours previously, and pupils very small but not "pin point."), R. T. 28, L. T. 33½. One drop eserin oil in 1-240 used. One half hour later pupils pin point and tension had dropped to R. T. 17, L. T. 24.

Comment: This case is interesting as showing a rapid drop of 26 mm. Hg. (R. Eye) and 21 mm. .Hg. (L. Eye), one hour after a single drop of eserin. The single observation of Jan. 25th, seems to indicate that an eye whose tension has been reduced by pilocarpine may suffer a still further reduction in intra-ocular pressure following the use of eserin. Had this patient had the benefit of prolonged and systematic miotic treatment, it seems likely that his disease could have been held in check, as I believe that those cases which show a very marked drop in tension (indicative of permeability of the filtration angle) are good subjects for miotic treatment.

This patient also presents a theurapeutic problem about which there may be honest differences of opinion. Given a patient with one eye blinded from non-inflammatory glaucauma, and the other seriously compromised, what advice shall be give him? I am well aware that there are many oculists of wide experience who would unequivocally insist on operation, under the conditions outlined above. I believe that I should give the same advice if I could assure myself that the patient had been under continuous and guided miotic treatment for a long time, and, nevertheless, had lost vision and fields. But this patient had had little miotic treatment, and that irregularly. As he expressed it, "I was told to put the drops (eserin) into my eyes whenever they felt hard." Such advice seems to show little faith by his former adviser in the efficacy of any miotic treatment. My observation indicates that in this particular patient, the unremitting systematic use of miotics, in increasing strengths, as the time goes on, may hold the intra-ocular pressure within normal limits, and probably prevent a further contraction of the fields. It goes without saying that if we adopt this plan the patient must be made fully aware of the reasons governing our decision and co-operate by returning at frequent intervals. If operation is finally decided upon, my preference would be for a broad basal iridectomy.

Case 5.—Five years before coming under my care, Mrs. E. H. B. had been seen by the late Dr. M. H. Post, who after careful examination, made the diagnosis of chronic glaucoma. I had the privilege of seeing Dr. Post's notes. He observed a fairly typical glaucoma cup, there was a moderate contraction of the fields, and central vision was slightly diminished. The period of his observation of this patient antedated the days of instrumental tonometry, and his notes showed that he was puzzled by the fact that the tension always seemed to him normal or only slightly plus. Dr. Post had the reputation of being able to determine with unusual exactness differences of tension by finger palpation, so that I have every confidence in the accuracy of his estimations. Under careful miotic treatment, the disease was held in check.

After Dr. Post's death, she consulted another oculist, who, at first, disinclined to accept the diagnosis, eventually did so, and continued the miotic treatment. For about a year preceding my examination, she had not been seen by any oculist, but was regularly using philocarpine drops.

RV 6-12, LV 1-25, excentric to the right.

The right field showed almost complete loss of the nasal field, and contraction to within the 70 degree circle on the temporal side. There was also a dumb-bell shaped paracentral scotoma to the nasal side, in the 10 degree circle. The left field was concentrically contracted and presented a complete central scotoma.

The ophthalmoscope revealed a perfectly typical and rather deep glaucoma cup. The temporal two-thirds of the disk was a dirty greyish white. The left showed an even deeper cup, with the vessels all pushed to the nasal side of the disk.

I was astonished, as my predecessors had been, that the tonometer read R-21, L-21. I had the opportunity of making frequent estimations and never has it gone above 31 (Schiotz). That reading was secured after miotics had purposely been omitted for several days. The patient was seen in consultation by Dr. DeSchweinitz, who stated that the diagnosis was "beyond dispute" and expressed his astonishment at the low tonometric reading. He advised continuance of the miotic tratment, frequent tonometric examinations, and counselled against operation unless the tonometer should indicate a definite rise of tension above the level recorded.

Comment: This patient was a frail little woman, high-strung, delicately organized, over-civilized. We have gotten in the habit of assuming that the intra-ocular pressure must be definitely plus (finger palpation) or above 30 (Schiotz) before the weakest point of the ocular envelope (the optic nervehead) will yield. As everyone is supposed to have a "weak point," may we not assume that this patient's nervehead was incapable of withstanding an intra-ocular pressure well within what is regarded as the zone of normal pressure? It has seemed likely that the normal tension for this patient was, let us say, 10 or 12 Schiotz, so that 20 represented a plus tension, and 30 was very high.

Case 5.—H. H. K., farmer, age 44, seen first May 20, 1918, complaining of failure of vision in the left eye for the past 8 months. No pain. R. V. 6-6, L. V. 6-12.

Ophthalmoscope.—Right nervehead a little pale in temporal half. Margins are well defined, veins full but not tortuous. Lamina cribosa visible. L. marked pallor of temporal half of disk. Both arteries and veins full and tortuous. Cupping of disk (glaucomatous?) from 10 to 12 o'clock. R. T. 15 (Schiotz) L. T. 51 (Schiotz). Fields R. full in all meridians. L. marked nasal contraction. Miotics for 7 months (eserin salicylate ½ percent and pilocarpine muriate I percent) had practically no effect on the tension, which measured (Dec. 2, 1918). R. 16., L. 44.

Dec. 3, 1918.—A broad basal iridectomy (Smith incision) was performed, recovery uneventful. Dec. 16, 1918, R. T. 14, L. T. 15. Jan. 13, 1919, R. T. 18, L. T. 35, reduced to 26 by eserin 1-240. Patient has been seen every three to four months. He has shown R. T. 16-19, L. T. 28-31.

The field has slightly enlarged. R. V. 6-5, L. V. 6-12.

Comment: A patient with (so far) a unilateral glaucoma simplex (left). Is the right eye in a preglaucomatous state? I have assumed that it is and have insisted on the regular use of pilocarpine as a precautionary measure. Did the iridectomy do any good? I believe we can answer in the affirmative (vision maintained, field slightly improved and T reduced from 44 to 31).

The left eye feels hard; if one were using the language of the old nomenclature, one would say "plus 1." Does not this case teach us that permanent reduction of tension (though not to the zone of normal tension) may be efficacious in bringing the glaucomatous process to a standstill? Is it possible that it may be better to reach a half-way point like this than to bring the eye to an extreme hypotony, as after the Elliott and Lagrange operations?

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# THE VALUE OF THE DETERMINATION OF BASAL METABOLISM—WITH PRELIMINARY REPORT OF __ CASES.

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The great strides that have been made in the last few years in simplifying the apparatus and technique for the determination of basal metabolism has brought within reach of the clinician a most valuable aid in the diagnosis of disturbances of the thyroid gland.

The exhaustive researches of DuBois and Benedict and their collaborators has given to the profession a great deal of valuable information concerning the basal metabolic rate in normal individuals and in various diseased conditions. Now that the more simple types of metabolimeter have brought this information within reach of the clinician, its value is greatly augmented.

The basal metabolic rate is the measurement of certain heat phenomena in the living body, when the subject is at complete physical and mental rest. At least fourteen hours should have elapsed since food was last taken before the determination is made and and the individual should have been at complete rest in a recumbent position for twenty or thirty minutes.

As Boothby[1] has so aptly pointed out, just as the measurement of the temperature with the clinical thermometer divides all diseased conditions into the febrile and afebrile groups, so the determination of basal metabolism divides all diseases into those with an increased metabolic rate, and those with a decreased rate. While the basal metabolic rate rests on this broad fundamental basis and its determination is of interest in many diseases, its chief value is as an aid in diagnosing disturbances of the thyroid gland.

Those diseases that have been definitely shown to be associated with an increased metabolic rate are: hyperthyroidism, either in association with exophthalmic goiter or adenoma of the thyroid, acromegaly in the active stage (hyperpituitarism), and all conditions in which there is an elevation of the temperature[1]. In other conditions such as leukemia, diabetes, pernicious anemia. and so-called essential hypertension an increased basal metabolic rate may at times be noted, but these findings are not constant. Boothby[1] and his associates believe that ninety-five per cent of all cases showing a definite increase in the basal metabolic rate are cases of hyperthyroidism, if the cases showing a rise of temperature are eliminated.

The most important group of cases that show a decrease in the basal metabolic rate are those with a decreased secretion of the thyroid. These cases may be definitely myxedematous or may present the less marked symptoms of mild hypothyroidism. Prolonged under-nutrition or emaciation will also give a low rate. Some workers, notably Enghbach and Tierney[2], have noted a definite decrease in the basal metabolic rate in cases with adrenal and gonad insufficiency. When the symptoms associated with any endocrine disturbance are considered it becomes apparent that it is extremely difficult to arrive at an accurate diagnosis. The difficulty is increased by the fact that frequently more than one of the endocrine glands are involved. For instance, hypothyroidism and hypopituitarism are frequently associated and the diagnosis is, therefore, more difficult. Then, the decreased secretion of either the thyroid or the pituitary gland may be associated with a decreased gonad secretion.

There is an increased secretion in the thyroid in exophthalmic goitre and in adenoma of the thyroid and this increase is indicated by an increased basal metabolic rate. There are many cases of mild hyperthyroidism where the symptoms are not extreme but are nevertheless distressing and often there is incapacitation. The symptoms in these cases are often vague and the thyroid gland is often overooked in a consideration of the case.

In the limited time at our disposal the symptamalology of hyperthyroidism can not be fully discussed, but a brief review of the picture frequently met with may be worth while. If the case be one of mild hyperthyroidism or early exophthalmic goitre there may be a nodular enlargement of the gland that has been present for years without causing any disturbance whatsoever, and hence the importance of the thyroid may be overlooked by one not thoroughly familiar with this type of case. In mild cases exophthalmos may be absent, and in adenoma of the thyroid may be absent in several cases. The patient gives a history of nervousness and restlessness. He is very excitable. He may be very enthusiastic about his work and be ready to carry it on, but is not able to apply himself to any physical or mental effort for any length of time. He may have a good appetite, but in spite of hearty eating, he loses weight. His skin becomes moist and he perspires freely. Shortness of breath and palpitation of the heart on exertion are noticed and later the palpitation occurs while at rest. The onset is usually so gradual that no definite data of onset can be assigned. Gastro-intestinal crises often occur. The cardiac symptoms may be so marked that they simulate cardiac insufficiency of organic origin.

It is readily seen that with the patient presenting any or all of such an array of symptoms, an accurate diagnosis becomes difficult. Particularly is this true in the early stages when the symptoms are mild. It is easy to see, therefore, why the advent of such a definite aid in the diagnosis of these cases as is afforded in the determination of the basal metabolic rate has been reviewed with so much enthusiasm by the profession. When all symptoms are considered and a clinical diagnosis arrived at without the aid of a basal metabolic determination many errors in diagnosis are made, whcih could be readily avoided if on accurate determination of this rate had been made.

Mosenthal and Marks[3] cite a very good example of the value of basal metabolic determinations as reported by Peabody, Wearn, and Tompkins[4]. Out of fifty-seven soldiers referred to them for treatment and suffering from rapid heart, nervous instability and physical inferiority, twenty-four were diagnosed tentatively as cases of hyperthyroidism; but when the basal metabolism was determined they were all found to have normal rates and the diagnosis of hyperthyroidism was ruled out.

Nervousness, tachycardia, slight enlargement of the thyroid, and lagging of the eyelids do not necessarily indicate hyperthyriodism, although they are suggestive. It is in these eariy mild cases where the diagnosis is so difficult that the determination of the basal metabolism is of such great value. In these cases an accurate diagnosis in the early stages will enable the doctor to institute proper treatment at a stage of the disase when the patient will respond much more readily than he will when the disease has become more advanced.

In the cases presenting the symptoms of mild hypothyroidism the basal metabolic rate is no less valuable than in the hyperthyroid cases. When you speak of hypothyroidism many doctors at once think of the typical case of cretinism or myxedema and never stop to consider the mild case of decreased thyroid secretion. Consequently, it too often happens that these cases are overlooked. Observations and classification of the symptoms of comparatively mild cases of hypothyroidism are being made by clinicians and recently Janney and Henderson[5] report an analysis of the symptoms in seventeen cases where a diagnosis of decreased thyroid secretion was made. Only one of these cases showed the classical syndrome of myxedema. All of the other cases except four cases of dysthyroidism belonged to the masked type of hypothyroidism. The most important symptoms in their series were history of obesity, particularly in early life: mental symptoms; marked liability to contract infections; hair anomalies; dry, harsh skin with pigmentation and atrophy; cold extremities and cold skin generally; decreased size of thyroid; and subnormal temperature, pulse, and respiration. Slowing of the pulse and respiration were the most frequently noted symptoms, occurring in eighty-one per cent of all cases. All of their cases showed a low basal metabolic rate.

As has been said before, the symptoms of hypothyroidism and hypopituitarism are similar in many respects and often the two conditions occur in the same individual. This only emphasizes the fact that in all cases presenting the symptoms of either hyperthyroidism, or symptoms suggestive of any of the endocrine disturbances that no effort should be spared in collecting all the information possible concerning the case. Our procedure has been to take a careful clinical history and make a physical examination, to make complete blood counts and a Wassermann titration and a routine urinalysis, to radiograph the teeth, sinuses, and gastro-intestinal tract when indicated, and to determine the basal metabolic rate.

In the determination of the basal metabolic rate we have used the portable Benedict-Sanborn apparatus and the Jones metabolimeter. The patient comes to the laboratory in the morning after a fast of fourteen hours and is required to rest in the recumbent position for twenty or thirty minutes. All cases have had at least two determinations and those showing a rate of more than plus fifteen have been checked up repeatedly until the increased or decreased rate has been definitely established. There is some difference in the limits of variation from the absolute normal which different workers consider within the normal.. We have considered any determination from plus fifteen to minus fifteen normal, but in this, like every other laboratory test, the interpretation of the result must always be made after a careful consideration of the history, physical findings, and after studying the whole record of the case.

In the interpretation of results it is always to be remembered that cases of mild hyperthyroidism are necessarily to be classified as such and that they should be treated accordingly. The impetus that the recent contributions to our knowledge of hyperthyroidism has given to the consideration of these cases by the profession as a whole makes it necessary that all physicians guard against over emphasizing the importance of mild hyperthyroidism. What we have to do is to exercise the greatest care in arriving at a diagnosis. The determination of basal metabolism, like every other laboratory aid, requires that it be done by one sufficiently trained to understand the instrument and the importance of every detail of the test. Unless this is done, the test is worthless. After an accurate determination of the basal metabolic rate has been obtained it must be interpreted in the light of the history and physical findings in the particular case in question; in no other way can its true worth be estimated.

After a diagnosis of hyperthyroidism has been definitely made it must be remembered that every case does not require surgical intervention or even rigid medical treatment. Many cases recover under treatment that does not necessitate a complete revolution in the patient's habits and mode of living. The flattering results that are reported in the treatment of properly selected cases of hyperthyroidism by x-ray gives hope that in the future many more of these cases can be handled without surgical intervention than at present. The three cases reported in this series who are receiving x-ray treatment have not been under treatment long enough to draw any definite conclusions. However, they have all showed marked improvement and their symptoms have been greatly relieved.

During the past four months determinations of the basal metabolic rate has been made in fifty-nine cases. This was done as a routine measure and many of the cases did not show any signs of endocrine disturbance. A record was made of the temperature, pulse rate, respiration, height, weight, and blood pressure. Measurements were also made of the span, torso and lower.

Of these forty-nine cases there were eight that had high metabolic rates and were definitely diagnosed as cases of hyperthyroidism. There was one case that had a low metabolic rate in which a diagnosis of hypothyroidism was made. Of the other fifty cases which had a basal metabolic rate falling within the normal limits, three were diagnosed as deficiency of the ovarian secretion. Four cases showed a four plus Wassermann and were diagnosed as lues. There was one case of persistent tachycardia in a boy seventeen years of age which gave no distress to the patient and was unaccompanied by any other symptoms. Repeated basal metabolic determinations in this case were normal and the pulse rate became normal when the patient was placed in a recumbent position and required to rest. There was one case of paralysis of the right half of the tongue. The other forty-one cases all had gastro-intestinal disturbances.

The following cases may be taken as representative of the hyperthyroid cases.

Case 1.—Mr. P. G. H. Age, thirty-five years. Family history.—Essentially negative. Past history.—Essentially negative. Present illness. —The onset has been gradual and the patient dates it from March 20, 1920. He has been nervous for several years, but in March, 1920, he began to lose weight and by June had lost thirty pounds. He has not regained his weight and has continued to be nervous, easily excited, and fatigued, but has remained at his work. Since December, 1920, he has had a rapid pulse and some shortness of breath. There have been occasional headaches and recently some digestive disturbances.

Physical examination.—Rapid pulse (120). Tachycardie, von Graefe's and Stelwag's signs positive, a slight tumor, exaggerated, reflexes, and hypertrophied tonsils. The thyroid was slightly enlarged.

Special examination.—Radiographic examinations of the gastro-intestinal tract and of the teeth were negative. Radiographs of the sinuses showed a shadow in the right antrum and both ethmoids.

The Wassermann titration was negative and the blood counts and urinalysis were normal.

The determination of the basal metabolism gave an average reading of plus forty-six.

Case 2.—Mrs. P. S. Age, thirty-one years. Family history.—Essentially negative. Past history.—Essentially negative. Present illness. —The date of onset can not be definitely stated but during the last ten months there has been a gradually increasing nervousness, excitability and tendency to fatigue. There have been headaches, tachycardia, some loss of weight and occasional attacks of indigestion.

Physical examination.—Negative, except for increased pulse rate (88), slight tachycardia, slightly positive von Graefe's and Stellwag's signs, horizontal nystagmus, slight tremor, palpable thyroid, and slightly exaggerated reflexes.

Special examinations.—Radiographic examination of the gastro-intestinal tract was essentially negative.

The Wassermann titration was negative and the blood counts and urinalysis were normal.

The determination of the basal metabolism gave an average reading of plus thirty-seven.

Case 3.—Mrs. H. M. L. Age forty-five. Family history.—Essentially negative. Past history.—Essentially negative except for two miscarriages.

Present illness.—During the past three or four months there has been a tachycardia which has been increasingly distressing. Shortness of breath, and tendency to perspire freely is also noted. There have been no headaches recently, although formerly she had frequent attacks. She feels nervous and is easily excited, although she continues to do her usual work.

Physical examination.—Rapid pulse (120), tachycardia, slight tremor, slight enlargement of heart, diastolic murmur best heard in aortic area and slightly enelaergd thyroid. On the first two days that the patient was seen there was a slight elevation of the temperature but when seen a week later the temperature had returned to normal without the symptoms being relieved. The systolic blood pressure was one hundred and eighty-five and the diastolic one hundred.

Special examination.—The Wassermann titration gave a doubtful positive reading. The blood counts were normal. The urinalysis showed a trace of albumen but no casts.

The determination of the basal metabolism gave a reading of plus fifty-nine (temperature normal).

This case was not one of uncomplicated hyperthyroidism. The aortic insufficiency and the history of two miscarriages, together with the doubtful positive Wassermann, points strongly to leutic infection. In view of the history, physical findings, and the high basal metabolic rate it is definitely established that the increased secretion of the thyroid is playing an important part in this case.

The one case of hypothyroidism which we have reported in this series was as follows:

Mrs. D. J. D. Age forty years. Family history.—Negative except three brothers and three sisters are obese individuals while one sister is slender. Past history.—Negative except the points mentioned in her present illness.

Present illness.—She has always been obese since the age of puberty. No mental disturbances could be detected nor was there any history of such disturbances. The extremities and skin, generally, have not been unusually cold, but there has been numbness and tingling at times. Sick headaches have been of frequent occurrence since childhood. For the past five years she has had frequent attacks of indigestion.

Physical examination.—Pulse 60. Temperature.—97.6. Respiration.— 14. Systolic blood pressure.—104, Diastolic.—70. Otherwise, negative except for dry, rough, skin; growth of hair on upper lip; and an unusual growth of hair in axilla and on the mons pubis.

Special examination.—The determination of the basal metabolic rate gave an average reading of minus twenty-four.

## Summary.

(1) The determination of the basal metabolism rests on a well established scientific basis and the technique has been sufficiently simplified to justify its routine use in the diagnostic laboratory and hospital.

(2) The basal metabolic rate is the measurement of certain heat phenomena in the living body when the subject is at complete physical and mental rest.

(3) The determination of basal metabolism can be done in any well organized hospital or diagnostic laboratory where the person doing the test understands the apparatus and pays sufficient attention to details, but the results must always be interpreted after a full study of the case has been made.

(4) A preliminary report of cases is made and our experience noted in a series of forty-nine cases where the basal metabolism was determined as a routine in general diagnostic studies. Eight of these cases were definitely diagnosed as hyperthyroidism and one as hypothyroidism.

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# THE ENLARGED PROSTATE: ITS DIAGNOSIS AND MANAGEMENT.

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Coming as it does in the last years of life, we know of no benign pathological process which is of more serious import than an enlarged prostate. Old age, in and of itself, increases the gravity of all operations of any consequence, but added to this there is, in many of these cases, a fundamental change in the kidneys due to slowly developing urinary obstruction with or without infection, which decreases to a greater or lesser degree the vital renal function. The first manifestations of urinary disturbances occur probably a number of years before the patient presents himself, due to the gradual and insidious growth of the tumor. Not until difficulty, frequency and dribbling become more or less marked or, not infrequently, even until acute retention has supervened does the patient seek relief. During these years of difficulty, frequency and dribbling a certain amount of residual urine accumulates, decomposes, becomes infected, and produces a cystitis and often, which is even more serious, an ascending infection. In such cases, the patient will void only the overflow urine and, consefuently, there is a back pressure exerted upon the kidneys which will eventually depreciate and even destroy their functional activity. In such kidneys the parechyma is destroyed and replaced by fibrous tissue and the typical small sclerotic kidney is the result. Grave arterial changes in those who have lived to reach the prostatic age occur and we often find arteriosclerosis with high blood pressure associated with an enlarged prostate. Osler has well remarked, ''A man is as old as his arteries.'' Consequently, a man of fifty with prostatic obstruction associated with cardio-renal pathology may in reality be, or at least surgically, fifteen years older.

Pus in the urine of these patients may simply mean a cystitis, but pyuria can have a more serious significance, especially so if its source is the kidney or kidney pelvis. It is by no means always easy to determine the source of purulent urine by cystoscopic examination, although it is the only means of accurate knowledge in this regard. The obstruction together with a lengthened urethra may not permit of cystoscopy. In other cases, the prostatic tumor may have grown upward carrying with it that part of the bladder wall adjacent to the internal meatus to such an extent that it may be impossible to see or catheterize the ureters. A prostate of considerable size often bleeds on examination, even though the cystoscope is very carefully introduced and the field of vision is materially obscured. Lastly, in the very old or debilitated, the general condition of the patient may be contraindicative to such an examination. There are, however, a large number who can be cystocoped without any considerable difficulty, and in these cases it should be performed. It is impossible to gain as much information regarding the pathology of the prostate by rectal examination as by cystocopy in a large percentage of cases. In some cases, for example, where a tumor exists in the median lobe or bar, giving rise to marked symptoms, it may be impossible to feel any appreciable enlargement by the bowel. The cystoscope, on the other hand, will give an accurate idea of the size of the tumor and the exact degree of obstruction which it is producing. Moreover, the complications such as the character and amount of cystitis, pyelitis, stone in the bladder, etc., are determined in this way. In some cases of ''cord bladder'' where there is an associated enlargement of the prostate of mild degree without obstruction, unless considerable care is exercised, the bladder symptoms of early tabes may be attributed entirely to such a prostate. The cystoscope will demonstrate in such patients a trabeculated bladder typical of locomotor-ataxia and a Wassermann on the spinal fluid will reveal the character of the disease.

The routine rectal examination is a most important procedure. In the great majority of cases it gives a true conception of the size of the gland and in this way an idea of the amount of obstruction produced. Furthermore,its consistency, whether soft or hard, and its contour, whether smooth or nodular, are best determined in this way. The hard, firm prostate whose consistency is almost that of a stone may and usually does mean carcinoma, especially if it is irregular or nodulated. Or a nodulated gland may mean tuberculosis, but the consistency of the mass will differentiate the malignant gland from the tuberculous one. Nothing else will give the stony hardness of cancer. Seminal vesiculitis, epididymitis and cystitis in tuberculous diseases are not infrequently part of the process, so that quite often evidences are to be found elsewhere which betray its real character. However, it is rare that tuberculosis or any other type of infection will produce a prostatitis that will cause obstruction. The elderly patient who comes complaining of a difficulty, frequency and dribbling dating back from one to several years, with possibly one or more spells in which the attending physician had to employ a catheter, is not suffering from any sort of an infected prostate or even with a hypertrophied prostate, as it is so often spoken of, but a tumor of the prostate in 99 cases out of every 100. This tumor in the majority of cases is soft, smooth and benign. In other words, the usual type of tumor found in the prostate is an adenoma or a fibro-adenoma. In a few cases, and not so infrequently as once thought, the gland is hard, perhaps nodulated and malignant. It is not unusual for such a prostate to bleed at times.

But the diagnosis of the local enlargement is not alone sufficient. If a patient comes in with a prostate which is definitely shown to be the seat of the trouble, it is imperative to ascertain the condition, not only of the urinary tract, but also the state of the blood, vascular and nervous systems. No matter how bad or how urgent the condition may seem, prostatectomy is never an emergency operation. It may be necessary to relieve the obstruction and this is best done by means of a catheter fastened in the bladder through the urethra. The catheter should be as large in caliber as it is possible to introduce so that the drainage may be free and adequate. The catheter should be allowed to drain continuously. In some cases the bladder becomes enormously distended so as to hold a gallon or more. In one case in Dr. Haggard's Clinic, the bladder was so large as to simulate a tumor. In such cases the retention must be relieved gradually, only 20 to 25 oz. being removed at intervals of 4 to 6 hours. This can be done by means of an indwelling catheter and a small clamp which will regulate the flow of urine as desired. There are two dangers in drawing off the urine from a greatly distended bladder too suddenly. There may be a severe hemorrhage from the vessels in the bladder-wall which rupture under a decreased tension; or the sudden withdrawal of all urine may result in collapse, a condition similar to shock, which has been known to cause death. When it is impossible to introduce a catheter beyond the obstruction, it is necessary to perform a suprapubic cystotomy under local anaesthesia, or, perhaps, in some cases better still, a trochar and canula can be introduced into the bladder, trochar withdrawn and a large sized catheter threaded into the bladder through the canula and left **in situ.** In any event, it is important that the drainage be free. This procedure is preferable to repeated failures to introduce a catheter with great trauma and infection that is as a sequel almost as serious as the obstruction.

Following the relief of the obstruction, there is plenty of time to work out the general condition of the patient. This oftentimes requires a number of examinations, some of which are tedious and painful.

(a) It is important to know the amount **of** urine excreted in 24 hours and this should be compared with the amount of fluid intake during the same period. A complete urinalysis should be made. A large amount of watery urine of low specific gravity means sclerotic kidneys. The significance of albumen, blood, pus and casts are well known.

(b) The amount of residual urine is important.

(c) Great emphasis has been laid on the condition of the tongue in prostatics with uremic symptoms.

(e) The blood chemistry, such as the amount of the creatinine, urea, nitrogen, and non-protein nitrogen, though difficult to make will render accurate information regarding the renal function. For all practical purposes the urea nitrogen is alone sufficient to estimate. In the normally functioning kidneys the amount of urea in the blood will vary between 15 and 25 mg. per 100 c. c. of blood, but when the excretion of urea has been diminished because of decreased renal function from any cause, the amount of urea accumulates in the blood and sometimes goes as high as 212 mg. per 100 c. c.

(e) The power of the kidney to eliminate can be directly tested by means of phenosulphenophthalein. One c. c. of the dye is injected intravenously and the patient given plenty of water to drink. The amount of urine should be saved for exactly two hours and fifteen minutes from the time the injection was given. In the average normal person we would expect to regain between 60 and 70 per cent of the dye within that period. The danger mark is 30 per cent and when surgery is employed below this percentage, the outcome is usually fatal. It is also well to note the time required for the dye to appear in the urine following injection. In the great majority of cases this test is very accurate, but it has a tendency at times to vary with the condition of the patient. For example, a patient with the function say of 45 per cent during the two hour and fifteen minute period may contract an acute cold which will reduce his phthalein output to 25 or 30 percent within the same period of time.

(f) An x-ray picture of the entire genitourinary tract is rather an important procedure. Sometimese a stone is found in one or both kidneys or in the bladder of these patients.

(g) Cystoscopy is important, when possible.

(h) By the general condition of the patient we mean aside from special complications, such as stone in the bladder, or a pyelonephritis, his ability to stand a radical operation for the relief of an enlarged prostate. That is, he may be too weak or feeble, too old, or too anemic to permit of surgery.

(i) The nervous system may show the signs of impending uremia, such as retinitis or choked disk. In one of our cases, a patient had a stroke of paralysis while sitting in the office, manifested by all the signs of a brain lesion and at death the autopsy showed a clot of blood lying on the left side of the brain which measured from six to seven inches long and about two and one-half inches wide. He had had during life only a faint trace of phthalein during the two hour and fifteen minute interval. A high blood pressure and a peculiar, dry, lemon colored skin showed him to be on the verge of uremia. Apoplexy, of course, is one of the natural consequences of such a condition, but it goes to show the serious general state that prostatics are apt to develop. The importance of ruling out tabes has been mentioned.

(j) The blood vascular system and its importance has been noted, the two chief factors being sclerotic changes in the vessels and high blood pressure.

Infection in prostatics is a serious factor. It is responsible for a large percentage of complications following operation; pyelitis, supra-pubic abscess, infection in the perineum, balanitis, phlebitis and pneumonia occur with more or less frequency after prostatectomy. Thus it is that infection ranks next in seriousness to lack of renal vitality. An infective process in the space of Retzius becomes a grave complication. The loose tissues of the pre-vesical space are less tolerant to infection than those of the perineal region. This is the one and only advantage that I know of in the perineal operation over the suprapubic. It has been the observation of many experienced men that those cases with a moderate amount of infection are less liable to complications and have a shorter and better convalescence following operation than those who come with a clear urine. This is apparently due to the immunity which has been established by a more or less long standing infection. In the large majority of these patients, the infection is due to a member of the colon group, and for this reason in quite a few clinics the patient is immunized with a mixed colon vaccine before operation. Three doses are given hypodermically a week apart. The latest and best statistics are proof that this is of value in lowering postoperative infections.

It is surprising how quickly the general condition of the patient will improve under this form of conservative treatment, and in this way a very bad surgical risk will improve to the point where an operation is comparatively safe. The essential factors in the treatment of a prostatic prior to operation is first of all, free drainage of the bladder and the consumption of large quantities of water, rest, not in bed unless it is absolutely necessary, and a diet which will remove the any undue amount of work from the kidneys. If the patient is on the verge of uremia, the treatment, of course, must be more intensive, such as hot packs, salts daily, fluid under the skin. It will be found that the infection will clear up, the kidneys will gradually and slowly come back to a point where the elimination of phthalein will be well within the limits of safety. The blood urea will decrease and after a period of time, varying from a week to a few months, depending on the condition of the patient, surgery can be employed with reasonable safety.

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TENNESSEE STATE MEDICAL ASSOCIATION
Devoted to the Interests of the Medical Profession of Tennessee

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AUGUST, 1921

# EDITORIALS

## ONE REASON FOR REPORTS.

Some days ago the newspapers of the United States—from one end of the country to the other—printed two letters from President Harding, one addressed to the Surgeon-General of the U. S. P. H. Service, the other addressed to the Director of the American Red Cross, in which the President stated that he wanted immediate action taken to stay the tremendous ravages of pellagra in the South, and to put a stop to the condition of semi-famine existing throughout the Southern states. The President's alarm was created, it seems, by a very misleading statement issued by the Public Health Service and carried by a large number of daily papers throughout the country. This statement was issued in the nature of a warning that a greatly increased pellagra incidence might be expected in the Southern states this year. A very unfortunate and a most misleading use of the word "famine" was used in the very first paragraph, and the prediction was boldly made that there would be 100,000 cases of pellagra in the South in 1921, and that 10,000 deaths would be recorded therefrom. In our opinion, this statement of the Public Health Service had no foundation in fact, and was unwarranted from any standpoint. However that may be, the letters of the President and a subsequent additional statement by the Surgeon-General, in which the latter official announced that the Public Health stood by its figures, created a veritable condition of consternation all over the land.

The one place in Tennessee that received the full force of the reaction to the alarming statements of the President and the Surgeon-General was the office of the State Board of Health. Telegrams, letters, telephone calls, and inquiries personally made poured in from all quarters. Great daily newspapers in the larger centers, magazines with great nation-wide circulation, and less pretentious publications wanted to know at once how many cases of pellagra existed in Tennessee and how far the ravages of the famine had gone.

Our own state press wanted to know, great numbers of individual citizens wanted to know. The governor of the State wanted to know. Folks who wanted to come to Tennessee from other states wanted to know. Our own folks who wished to go to other states wanted to know. A bunch of Tennessee doctors, some of whom never reported a case of pellagra in all their lives, wanted to know. And we ourselves, which "we" happens to be the executive officer of the State Board of Health, wanted, very much wanted to know approximately how many cases were in the state. We were abundantly able to refute the "famine" story, barring our limitations of vocabulary, but had no really worth-while information that would enable us to approximate the actual number of cases of pellagra in the state.

Here we were—Tennessee, the greatest and one of the richest in natural resources of all the states, in our humble opinion, advertised to the world as overwhelmed with pellagra. Who could refute or substantiate? The State Board of Health, of course, because the law requires the doctors, who alone have the necessary information, to report their cases of pellagra to the State Board of Health through the municipal and county health officers. Well, the State Board of Health refuted, alright, but not because the doctors of the state had complied with the law and had reported their cases, but rather because the officers of the Board had otherwise secured information about the situation in Tennessee, which, in a general sort of way, controverted the alarming statements that had been published. How better it would have been could the State Board of Health have answered on complete figures based on complete morbidity reports from the doctors of the state!

In June, 1921, there were reported through county and municipal health officers just 66 cases of pellagra. In that same month 23 deaths were recorded as having been caused by pellagra. On the accepted basis of estimate of 20 cases of pellagra for each death, there were, if correct cause of death was assigned, at least 460 cases of pellagra in the state.

Report to your health officers all your cases of reportable diseases and thereby assist in the creation and maintenance of a clearing house for such important information, from which the true facts concerning health conditions in Tennessee can be sent out promptly and convincingly, either to refute damagaing statements or to verify and strengthen true statements made in the interest of public health in our great state.

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## HERE IT IS.

For several years the Journal and a few individual members of the Tennessee State Medical Association have been trying to get the profession of the state interested in the subject of workmen's compensation, and in the legislation that has been enacted, or that may be enacted concerning that subject. Small success has attended these efforts, the doctors refusing to be interested in the matter. A law has been put into effect in Tennessee and other laws will undoubtedly be enacted. If the doctors do not take any more interest in future legislation on the subject than they took in that which has already been passed, they will, in all probability, be hurt again, just as they have already been hurt by the law that is now in force.

The present workmen's compensation act limits the liability of employers with respect to payment for physicians' service and hospital service to $100. Several times when we have pointed out the injustice of this feature of the present law, we have been met with the statement from physicians regularly paid by insurance companies for caring for persons insured under the law in question, that these companies had never held them to the amount stipulated under the law in settling their bills for professional service. These physicians seemed to think that because insurance companies had not taken advantage of the clause in the law which limited their liability, they would never do so. But they are wrong. Here is a letter from one of those companies, written by its local attorney.

Dr. ————————,

Nashville, Tenn.

Dear Sir:

I am inclosing herewith draft payable to your order in the sum of $63.94 for services rendered in the case of-----------, one of the -------------Company employees. You will remember your bill in this case was $156, and the city hospital bill was $88. Under the statute the -------------Company is liable in the amount of $100 for doctors' and hospital bills, and the insurance company prorated your bill and the hospital bill, paying you $63.94, and the hospital $36.06.

Please mail me a receipt for this amount in order that I may forward it to the home office.

Yours truly,

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The employee referred to in the above letter was injured to an extent that required him to remain in the hospital for 45 days. The insurance company sent a check to the hospital for $36.06, which works out at the rate of 80 cents a day for the hospital. The doctor's bill of $156 for initial treatment of any injury that would confine a man to a hospital for 45 days and for after care during that period should not be considered excessive, even by the lawyers that compose the Board of Trustees of Johns Hopkins Hospital. The $63.94 that the insurance company offered the doctor in full settlement would not decently compensate him for the after-care of the patient, to say nothing of the initial attention given to the case. Had the doctor receipted the draft that was tendered him, he would have signed as having received payment in full.

We have no further comment on this particular case, and we will not argue further at this time on the general subject of workmen's compensation laws as they effect the interests of the medical profession in this state, except to say, as we have a perfect right to say under the circumstances—"We told you so."

## THE JOHNS HOPKINS PLAN.

Press dispatches have it that the Board of Directors of the John's Hopkins Hospital have decreed, after mature deliberation, that no fee in excess of one thousand dollars shall be charge for any operation performed in that insituation, nor shall there be a charge in excess of thirty-five dollars per week for attendance upon a patient who is a non-surgical case. It is interesting to speculate as to the motive which prompted this action. If it were to bring to the attention of the general public the well known institution, it served its purpose, for there were numerous editorial comments in the lay press on the matter. One editorial writer referred to the "curbing the 'Robin Hoods' of medicine." It will be recalled that while the mythical character was a bandit, he was noted for his generosity.

The question might be asked whether the physicians and surgeons practicing in Johns Hopkins Hospital have been charging excessive fees and this means was taken to restrain them from doing so. This can hardly be so. It is a well known fact that the Johns Hopkins Medical School has, for a long time been committed to the "all time" or "university plan" of teaching medicine. This has worked well in the first two years of the curriculum, but there has been difficulty in the operation of the last two years when the practical branches are taught. The all-time teachers in the branches of medicine and surgery, and their immediately allied subjects, are difficult for a medical school to obtain; for the reason that a man sufficiently well qualified in knowledge, skill and training to be the head of a department can find greater remuneration in private practice than can be given by him in any medical school, even in the present day of heavy endowments. It is said that in the early days of the all-time professorship of the chair of surgery, that the surgeon was given a salary and that all fees collected by him were turned over to the medical school. The professor actually earned money for the school. Obviously this did not produce the greatest satisfaction. If this plan is to be tried again, the one thousand dollar limit might make for a more permanent and harmonious functioning of the all-time experiment in the teaching of the practical branches of medicine. Nothing is meant in these speculations to reflect on the honorable name of the Johns Hopkins Hospital and they are made simply because the Board of Directors have made no statement that has been seen as to their reasons for taking this action.

It is interesting to note that of the numbers of editorial comments seen in the lay press of the limited fee ruling practically all of them were not in harmony with the action taken. It would seem that at least the educated lay person is still cognizant of the great amount of free services given by the practitioners of medicine. "Each according to his ability" is a slogan that all conscientious practitioners of medicine have adopted, though not openly. To withhold all that modern medicine and surgery have at their command from the poor, because of their inability to pay, is abhorrent to our most rudimentary humanitarian instincts. The statement that the rich are charged large fees to balance the free service is not right and it is not true. Those that are able to pay are charged a fee in proportion to their ability to pay for the services rendered and the benefit incurred. When a signal service is rendered a patient in which his very life is concerned, a charge in proportion to his ability to pay is only right and just. Upon what valuation does he place his life? Based on purely monetary consideration he apparently considers his business more important than his health or his life. Call a meeting of business men to show them how to increase their profits and a large, enthusiastic meeting is quite certain; but send a call out to the business men to show them how to conserve their health and prolong their lives and only a desultory gathering may be expected. The average man willingly pays his attorney fifty per cent of a verdict in a contested law suit, but he will greatly demur at paying a similar fee for a skilful operation which saves his very life.

The setting by the Johns Hopkins Hospital of a maximum fee for medical or surgical services is a misdirected step. What a general public needs is education in the line of evaluating health and life. When it comes to a full realization of this the public will be ready to pay more, not less, for this service. It is a well-known fact that the rich and the poor now get all that medical science can offer; the rich because they can afford to pay for it and the poor because they can't! If some institution could perfect a plan whereby the average man, the "middle man," could get all that he should get from medicine and surgery, this would prove a real boon to society. The Hopkins plan of taking care of the poor little rich man will not be received with favor by the public or the profession. G.

## THE NASHVILLE CITY HOSPITAL.

In the recent charter change of the City of Nashville a provision was included in that law which changed the government of the Nashville City Hospital. A board of hospital commissioners, composed of four physicians and three laymen, now govern that institution. Mayor Wilson nominated, and they were confirmed by the City Council, a very excellent body of citizens. At the first meeting of the board, Dr. R. E. Fort was elected Chairman, Dr. Y. W. Haley, Vice-Chairman, Dr. W. C. Dixon, Secretary. The other members of the Board are: Dr. T. D. McKinney, Mr. John Trotwood Moore, Mr. Lytton Alley and Mrs. John M. Kenny. It is said that many changes for the betterment of conditions at the City Hospital are under way. An active staff organization for the operation of the purely technical side of the institution will be adopted. This has here-to-fore not existed in fact. It has been stated on the authority of one of the members of the present board that last year $91,000 was expended on the care of a daily average of sixty patients. The Nashville City Hospital has been a maelstrom of political activity for years. It would seem from the personnel of the present board that this undesirable features will be eliminated from this potentially good institution.

## LOOK OUT FOR SMALL-POX.

In 1919 there were recorded 13 deaths from small-pox in Tennessee and in 1920 there were 11. Though there were two less deaths last year than in 1919, there is no doubt that small-pox was decidedly more prevalent in the State in 1920 than in 1919, nor is there any doubt but that there has been more of this disease up to the present time this year, 1921, than there was in the first seven months of 1920. New cases are still being reported, even in August, a month in which as a usual thing there are no such reports received.

The schools are reopening in some counties and within another month every school in the state will be at work. No school should permit any child to enter who can not present evidence of successful vaccination. A very definite responsibility rests upon the family doctor in this connection.

## A CLINICAL MEETING WITH AN ALL-STAR CAST.

An attractive innovation in medical meetings has been undertaken by the Mississippi Valley Medical Association, to be held in St. Louis on October 13, 14, and 15. For this occasion, a most unusual program, entirely free from the ordinary trite and formal medical paper reading, has been arranged.

Program participants have been carefully selected from eminent specialists among the leading authorities in the various fields of medicine. The preliminary announcements contain such names as Dr. Llewellys F. Barker of Baltimore; Dr. Anthony Bassler, of New York; Dr. Chas. H. Frazier, of Philadelphia; Dr. John J. Pemberton, of Rochester, Minn.; Dr. Isaac Abt. of Chicago; Dr. C. Jefferson Miller, of New Orleans, and others of equal prominence. These noted clinicians have accepted invitations to give scientific addresses (not papers) consisting of clinical demonstrations and discussions upon borderline subjects pertaining to their particular specialties. Because of their clinical bearing and wide medical scope, the subjects chosen will undoubtedly be of more interest to the general practitioner than to the specialist.

The third day of the program will be given over to the clinics in the various St. Louis hospitals and universities, at which the guests of this Society as well as St. Louis physicians will participate.

The date of this meeting coincides with the Centennial Celebration and Pageant of St. Louis, which event will no doubt accord additional means for entertainment and social enjoyment to those attending this meeting. Dr. William Engelbach, University Club Bldg., St. Louis, is chairman of the Committee of Arrangements and will gladly answer inquiries requesting further information.

## DOCTOR—WHAT ARE YOU WORTH?

Dr. Frank Crane has put it editorially better than any words yet framed. "From your chin down you are worth about $2.50 per day, from your chin up you are worth anything. There's no limit. Without your headpiece you are just an animal, and about as valuable as a mule—maybe."

The public has a mistaken idea about the doctor. They think that he is paid entirely for his work. He is not. He is paid for what he thinks while he is working. It's the kind of brain that directs his hands that give him his rating. Te public is never concerned about the contents of a doctor's skull, but sizes him up in mass below the collar bone. They think that because he uses his body by keeping his arms strong, his legs limber, and his waist line supple that his cerebrum is never exercised regularly.

Unless we are experts in golf or tennis, poker or craps, our thoughts are flabby, uncontrolled, useless. They think that we are never entitled to pleasure or recreation except from our chins up. As long as we have shoes on our feet, food for our stomachs, and clothes for our backs, we still must be content with fun in the attic and not in the cellar. They think that books at all times should be our interest, with no thought of beer, fishing or hunting.

They think we are pulled by a cable-tow from the head and never from the loins. They think we can live after our heads are severed from our bodies. We are judged only as animals pestered with a medicinal brain and with a soul prisoned in a body.

Our gist of culture should never be transferred from above our noses. There is an increasing realization that the laity thinks that the physician should charge what he did years ago regardless of the increased cost of living. Sugar went high, as well as other food commodities, medical fees remain the same, and today the physician is having a sweet and high time in collecting his bills.

The physician must begin today to think more of himself, his profession, capacities and powers. We must gain more self-respect and let the sense of dignity grip us with a bulldog's tenacity—to some degree get "hard-boiled," and do not let the public call "Mercy, kamarad" every time you charge them $3.00 for day calls and $10.00 for night calls.

We must stand the challenge of a new ambition. When you get the public to thinking that a physician is something more than a tool or piece of machinery, we will have gained a new vision of self-respect, and such a vision will cause a rise in value. When we unlock the time value of the physician to the public and "stand pat" in our demands, we will be of some value in life besides as a public servant.

The physician in years gone by was content to run in low speed because the roads were free and wide and he was content with many ruts along his driveways to fame and fortune. The public in those times thought down to the right relation with their physician. They loved him, looked up to him, and even at times, if proper consideration was not shown at night, he in the long run was well paid for his services in cash or a commodity oftentimes more valuable than cash today.

The physician of today must necessarily run in high speed regardless of the dangers of skidding and obstaclese along the road, for in these times he rarely gets paid in full for his visits, and if he takes steps to collect his bills, he is an "ungrateful cuss." We practice "on a credit" and are less fortunate than our brothers in the dry goods, the grocery and the gas business, who are backed up by a credit system, and can demand payment of bills in full at the end of the month.

The medical profession is just about the worst abused profession that ever came down a pike in a "flivver", Pierce-Arrow or Buick.

The medical profession must get together and make the public think down to the right relations with us. Educate them into seeing each man in his place, and when this is done, it will give them sanity and sympathy towards the profession. They will begin to plan ahead for the doctor, as well as for the dry goods and the grocery man, and pay their bills in full. When this happens, we will begin to taste comforts and happiness and be free of mental worry.

When the public awakens to the value of the physician and their duty towards him, their souls will be aroused and will rally to a new support of him. When all this is brought about, the greatest good will have been accomplished, and when all men calling on doctors for medical aid have sensed it, the priceless value of the physician to life will be inestimable. No man will doubt his worth; he will dare divinely and achieve limitlessly. You will find the magic talisman of full public estimation and appreciation creative abundance, and be able to meet your honest debts like other men.

To accomplish all this, the medical profession must get into their systems enough of the **Oleoresin Pinus Calcis** to hold them to a decision that a patient must pay up his accounts like he does the other fellows.

Secure the price of your toil from your brain and hands, and you will realize how much you are worth.

Yours truly,

Thos. H. Ingram, M. D.

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## IN MEMORIAM.

George Elmer Horton was born in Michigan, Feb. 21, 1875. He received a common school education in his native State and responding to the urge of circumstances he, at an early age, undertook to care for himself. His struggle for a place and a competency was but a repetition of that struggle which every young man must make who faces the problem of life unaided by family fortune.

When he determined to take up the study of medicine he did so; putting into it, in full measure, that zeal and enthusiasm with which he was so richly endowed. He held the front rank in his classes and graduated with distinction.

Gifted with a high order of mind and a fine and pleasing personality he was early recognized by his fellows as a man of superior attainments and great promise.

The first years of his professional life were spent at Wartrace, where he was trusted and beloved by a large clientele.

When the nation entered the great war he was among the first to offer himself to his country and in his service in France he was rapidly accorded that recognition which his zeal and talents merited.

Upon his return to America he located in Shelbyville where he limited his practice to the eye, ear, nose and throat and at once took front rank in his special work.

George Horton was one of God Almighty's gentlemen. Gentle, considerate, able, zealous, clean in his professional relations, he endeared himself to his professional brethren and to his patrons so that his untimely taking off carried with it, to all of us, a peculiarly poignant sorrow that we shall be long in forgetting.

As a perpetual memorial of his life and work among us and as an evidence of our profound grief at his untimely and needless death we order these expressions to be made a part of the record of this Society and a copy given his familiy.

The mortal clay, twas but the outward semblance of a man,
Is wrapped in dreamless sleep,
It is the thing on which dread death has put the ban,
The thing o'er which we stand and weep.

The man still lives,
His acts, his thoughts, and all he said or felt,
Sleep not in the clay where once they dwelt,
But vital, sentient, breathing things, they scorn the ban.
They live, they are the deathless man.

His faults or falterings or what ere else of weakness seems,
Shrink back as shadows before the searching beams
Of truth and charity; and are hid
By love of right and all the good he did.

J. P. Taylor, Chairman of Committee,
Bedford County Medical Society.

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## THE X-RAY DIAGNOSIS OF GALL STONES AND GALL BLADDER DISEASES.

**By W. O. Floyd, B. S., M. D., F. A. C. S., Assistant in Surgery, Vanderbilt University, Member Surgical Stac, St. Thomas Hospital, Nashville.**

The x-ray diagnosis of gall stones has been attempted for many years, but really abandoned by many roentgenologists as a useless procedure due to the great difficulty of showing these stones when they are present, as most gall stones contain very little calcium or other material necessary to cast a shadow upon the x-ray plate. But with improved apparatus and better technique some operators are now reporting from 50 to 70 per cent. of stones, although many of the leading roentgenologists still claim that not over 30 to 50 per cent. of stones can be shown.

I wish to report somewhat in detail our findings and results in 362 cases rayed at Dr. Haggard's Clinic during the past few years. When we began this work in 1916 we knew so little of its value that only 35 cases were rayed during that year, but as we gradually demonstrated its worth as a diagnostic agent of great merit in certain cases, we have gradually rayed an increasing number ot patients that have presented themselves with suggestive yet questionable symptoms of gall bladder disease, the number of cases totalling 113 during the past year.

It is hardly necessary to say that the average gall bladder case with a so-called typical, text-book symptomatology is easily diagnosed, but gall bladder diseases, like many other pathological conditions, at times have a habit of masquerading under symptoms that are quite difficult to recognize; and it is in this particular group of cases that the merit of x-ray diagnosis has been tested, because, comparatively speaking, only a few of our cases with typical symptoms have been rayed, the most of our cases being those in which the location of the lesion, if any existed, was a questionable one.

Our records show that during this particular time we have operated upon 237 cases with gall bladder pathology, but that only 91 of these cases have been x-rayed, leaving only 146 or 62 per cent. of our gall bladder cases that were not x-rayed.

Our records also show that 362 cases have been rayed, 6 of whom could not be reported upon, which leaves 356 cases with which this report deals. Of the 6 cases not reported, all of which were negative, in most instances there was so much gas present that stones could easily be overlooked. Four of these cases were explored before other plates could be made, 3 of them being negative, and one having stones.

Of the 356 cases reported, 211 were not operated upon, 51 having positive reports, while 160 had negative reports.

No effort has been made to trace these cases not operated upon and doubtless some of them have been operated elsewhere, as many of them had very definite positive evidence by th x-ray of gall bladder disease, but refused operation. In some cases the stone shadows were as definite as any that I will show you in this series. Thirteen cases that were reported negative had definite evidence of duodenal ulcer but have not been explored, while three of the cases had definite stone shadows but had advanced inoperable cancer of the stomach and of course were advised against exploration for gall stones.

It is with the 145 cases operated upon that I wish to deal particularly in this report.

In this series of cases quite a few could not be reported as certainly positive or certainly negative, but in this report whenever there was a question of doubt we have taken either the positive or the negative side; for example, if shadows existed, they were reported either as stones or as some other material, and in some cases shadows were reported as stones that proved to be fecal and vice versa.

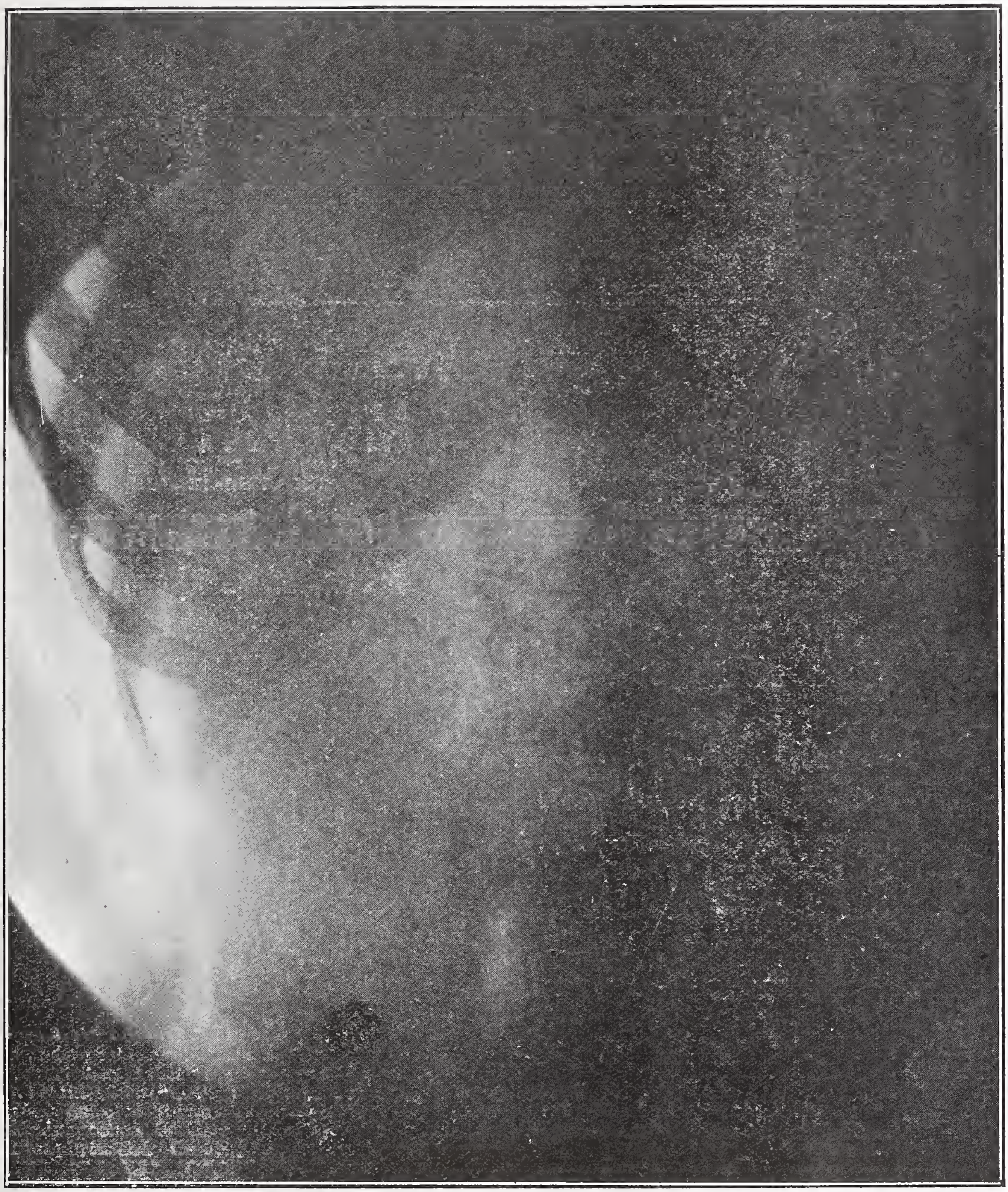
I do not wish to bore you with technique, but I do wish to say a few words about plate interpretation, which I believe is probably more important than the exposures. We have found that many times gall stones are present but are so faint that they may frequently be overlooked, especially when looking for them with the plate surface at right angles to the rays of the light, whereas if the plate is so slanted or tilted as to have its flat surface at less than a right angle to the light's rays, these faint shadows may be detected No gall bladder plate should ever be interpreted before bright light and all other light should be excluded if possible from the room. Wet plates should never be passed upon wh faint shadows are questionable, as dry plates will show them better. We have also noted that these faint shadows can be seen best at a distance of from four to six feet from the plate, rather than quite near it. We have also noted another very important thing with reference to double plates. Many times two plates placed together and slightly under exposed will show these faint shadows definitely when they are questionable or cannot be seen at all on single plates; and again they may be seen on a single plate or on several plates when they cannot be detected at all on other plates of the same group. We have been able on three occasions to review plates after seeing the size, quantity and location of the stones at operation, and to definitely detect the stone shadows which have been passed up before operation was negative. However, these three cases have been counted as negative reports and credited as errors in diagnosis. Many times it is also necessary to vary the plate distance from the light in order to better definitely detect these faint shadows.

The greatest difficulty in diagnosing these shadows many times is their great similarity to fecal shadows, but this can usually be overcome by a purgative and raying the patient again the following day or so. If the shadows are fecal the second set of plates will not have shadows identical with the first plates and, besides, fecal shadows are usually surrounded somewhat more or less by a bit or quantity of gas which always darkens the plate at this point. This is not true of gall stone shadows unless the gall bladder is overlain by the colon, as is sometimes the case. Other shadows that may confuse us are malignant glands, a case of which we have had in a man 70 years of age with a cancer of the liver accompanied with pain and jaundice. The gall bladder was found to be normal at exploration, but the x-ray plate showed a very definite shadow in the gall bladder region about the size of a .32 bullet, very much resembling a gall stone. In elderly persons calcareous deposits in the cartilage may also be mistaken for gall stones and we have been mistaken on one occasion by a stone in the right kidney.

Of the 362 cases rayed, the youngest was a case of cholecystitis in a girl 14 years of age, while the oldest was a man 77 years of age that had stones removed. The average age was a little over 45 years.

The symptoms varied from that of the so-called typical attack in a few cases to those simulating almost every known intra-abdominal lesion, as will be further brought out in dealing with the cases that had negative reports but later had gall bladder explorations. The duration of the symptoms varied from that of a present attack to that of many years.

Many cases had had at some time or another a gall-bladder diagnosis made by one or more men and quite a few of them had been previously x-rayed elsewhere, with a negative diagnosis in most instances, although one case had had a positive diagnosis made, in which we found duodenal ulcer without stones, this being our x-ray diagnosis before operation. In most cases, however, one was not justifiable in making a gall bladder diagnosis upon the clinical story alone, and hence the x-ray



A cluster of medium sized gall stones in a female patient 24 years of age. This patient had not had typhoid and had not borne children. She came in with a diagnosis of appendicitis, but her clinical story was not typical of either appendix or gall bladder. Note that the stones were partially hidden by the transverse process of the first lumbar vertebrae.

was resorted to either give additional evidence or to negate that already at hand.

As has already been stated no middle ground or straddling has been attempted, but either a positive or negative report has been given in 356 cases rayed; but since I believe that every gall bladder that cast a shadow upon the plate is a pathological gall bladder either with or without stone, all such cases have been reported as positive.

In order to more carefully study these cases from the standpoint of the x-ray report as related to the pathology found at operation, we have divided them into the following groups:—

(1) Those cases that had a positive x-ray diagnosis of stone in which stones were found at operation. This group totalled 52 cases.

(2) Cases that had a positive x-ray diagnosis of gall bladder disease, either with or without stones, that were proven at operation. There were 23 of these cases.

(3) Those cases of positive x-ray reports for stone or gall bladder disease that proved to be negative at operation. There were 9 cases.

(4) Those cases that had negative x-ray report in which either stone or disease or both were found at operation. There were 16 such cases, making a total of 91 cases in which either stones or a cholecystitis or both were proven at operation.

(5) And finally those cases that had a negative x-ray report and in which the gall bladder was found to be normal at operation. This group contained 45 cases.

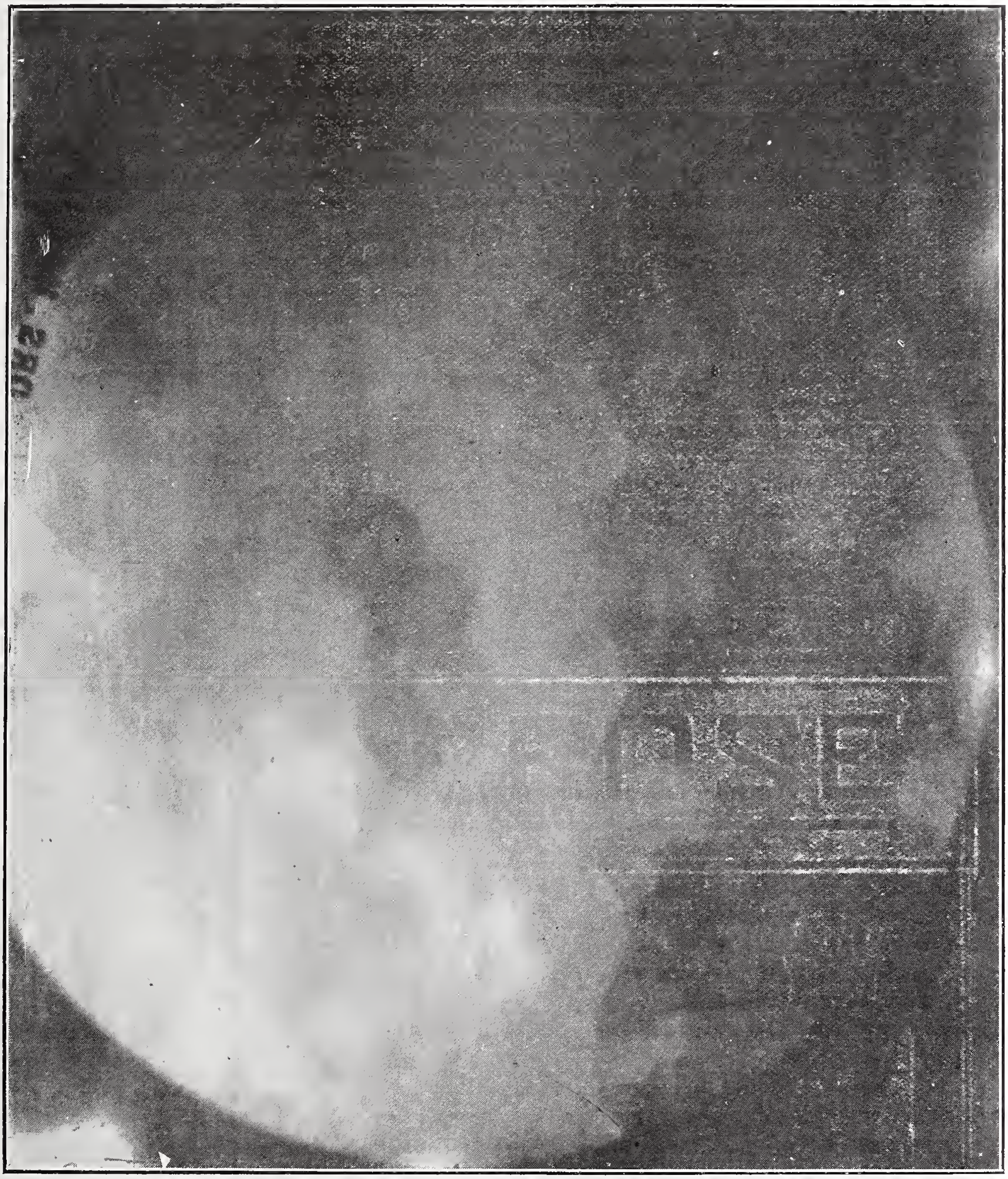
Taking up these different groups singly, we have no further comment to make on group one, that is, the 52 cases in which stones were reported and found.

In the second group of 23 cases reported with gall bladder pathology, all of which proved correct at operation, 12, or a little more than 50 per cent. had stones, while 11 did not. One of the stone cases was a fleshy woman weighing 195 pounds.

In the nine cases reported as positive which proved to be negative at operation, the following pathology was found: One case each of kidney stone, appendicitis, acute pancreatitis, cancer of the pancreas, cancer of the liver, as reported above, duodenal ulcer, and a perforated duodenal ulcer with a small abscess about the gall bladder that contained about one dram of thick, creamy pus, that doubtless had cast the shadow upon the x-ray plate. The plate shadows in the two remaining cases were doubtless fecal, but the records did not mention the pathology found.

In the fourth group of 16 cases reported as negative that proved to be positive at operation, the following explanations are given as probable causes of error. In one case with a large single stone the gall bladder was practically in the pelvis and the x-ray exposure was too high to catch the stone. Three cases had definite shadows but were reported as fecal. One case with a small contracted gall bladder in an elderly patient has such dense adhesions between the pyloric end of the stomach and the gall bladder that it was reported as early cancer of the pyloric end of the stomach. Four cases had a low grade cholecystitis without stone and hence there was very little thickening in the gall bladder walls. Three had the small, round, black stone resembling black pepper seed, which type we have never shown on the x-ray plate. One was reported as duodenal ulcer due to the cap defect caused by the dense adhesions existing between the duodenum and small, thick, contracted gall bladder. One patient weighed 185 pounds, and one case had stones removed two and one-half years later, which might have formed even after the patient had been x-rayed, as I recall one of our gall bladder cases in which we removed many medium sized stones, all faceted and of a brownish color, and drained the gall bladder. This same patient returned about a year later complaining of her old symptoms. We were somewhat surprised to find a medium-sized, single, round cholestrin stone of a shining, glistening appearance, entirely unlike the first set of stones, and hence could not have been a stone left at the first operation but must have formed within the year following the original operation.

Of the 45 cases reported as negative and proved to be positive at operation, the following pathology reports are recorded:



A group of large gall stones in a patient with an atypical history. This patient was also a neurotic, and it was questionable, before the X-ray plate was made, if any real pathology existed.

Seventeen cases showed appendix pathology. Ten cases proved to be duodenal ulcer, but after negative reports had been made on 9 of which we had diagnosed before operation the gall bladder, as gall bladder cases are rayed and reported as a rule before the stomach is rayed, in cases where the stomach is to be rayed; if not, the barium in the stomach meal may confuse after it reaches the intestines by resembling gall stone shadows.

Four of these negative cases had gastric lesions and five had hepatic lesions, three being abscess, one being cancer as above described, and one being luetic with a large, tender, painful lower right lobe, in a very thin female patient, that very much resembled a large, distended gall bladder due to cystic duct obstruction. Two of these cases had small chronic right pus tubes adherent and up practically out of the pelvis, one of which had been diagnosed as gall bladder by three different men. Two other cases had fibroid uteri, but with additional symptoms thought to be referable to the gall bladder. One case had a small right ovarian cyst lying up out of the pelvis and partially twisted on its pedicle. One was a metastatic retro-peritoneal sarcoma following the removal of a testicle. This patient also had pain and a tender mass in the gall bladder region without any local evidence of a recurrence, and one case had a tubercular peritonitis.

Before closing I wish to mention two other points noted in reviewing these cases, the first thing being that in the 135 positive x-ray reports, 13, or about ten per cent. were reported as having the duodenum adhered to the gall bladder, which was also proven in every case operated upon. In one case operated upon this was the only x-ray evidence we had of gall bladder disease. The other interesting fact is that out of the 237 cases operated upon with gall bladder disease, 184 or 77 per cent. had stones.

**Summarizing**:—We found that 84 of the cases that had been operated upon had positive x-ray reports, 75 of which were proven true at operation, giving the positive x-ray reports a correct diagnosis in 89 per cent of the cases.

Sixty-one of the cases operated upon had a negative x-ray report, 45 of which were proven to be true at operation, giving the negative x-ray reports a correct diagnosis in 70 per .cent. of the cases.

The number of cases reported as stones and proven at operation were 52. Besides these stones were found in 12 cases in which there was a report of a pathological gall bladder, and stones were also found in 11 cases reported as negative. making a total of 75 cases in which stones were found in the cases that had been x-rayed, which gives us a percentage of 69 with reference to stones shown, which does not include the three cases reviewed after operation in which stones could be observed on the plates.

## A CLINICAL AND SURGICAL STUDY OF FORTY CASES OF CHOLECYSTITIS.*

By Otis S. Warr, M. D., F. A. C. P., and
Carl Sanders, M. D.
Memphis, Tenn.

In presenting a clinical study on gall-bladder disease, the writers are aware that little, if anything, new is being added to this rather hackneyed subject. Furthermore, at the present time when it is the fashion to study disease in terms of functional pathology it may appear a bit reactionary to deal with a subject from the clinical standpoint alone. Yet we believe that the tendency today, both in our practice and in our teaching, is to depend too much on the laboratory to make our diagnoses and to discount the value of clinical observation.

During the last fifteen months in our clinic a diagnosis of cholecystitis was made in 161 cases. Of this number forty have been operated upon and the diagnosis verified. This paper is based on a study of these forty cases. While the series is small, they serve to emphasize certain important clinical features of the disease.

In the recent literature there is comparatively little reference to the digestive symptoms in gall-bladder disease. Instead the emphasis is usually placed on the character of the pain, the attacks of colic and the jaundice. In a large majority of our cases the patients came complaining primarily of digestive trouble rather than pain and often there was no mention of attacks of colic unless questioned directly.

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*Read before the Tennessee State Medical Association at Nashville. April 13th, 1921.

A number of cases have been found by a routine method of examination, especially of history taking.. In a few cases there was no relation between the gall bladder disease and the complaint which brought the patient for examination.

There is usually a characteristic digestive history. In our series 28 cases (10%) complained of a definite qualitative food dyspepsia. By this we mean that certain foods would always precipitate an attack. The foods usually not tolerated were raw apples, onions, peppers, cabbage, pickles and salads. Certain other foods occasionally gave trouble.

There were 30 patients (75%) who gave a history of attacks of epigastric colic. These were usually attributed to some error in diet. While the pain was rarely definitely localized, it was always referred to the upper abdomen. It was described as severe, colicky in nature, and associated with nausea, a sense of bloating and upward pressure, short grunting respirations and a feeling that the breath would be cut off any moment. In most instances the pain was described as radiating to the right shoulder and in one down the right arm. We have found no case in which the pain was referred to the left shoulder. During the attack in some cases there were loud explosive eructations of gas which gave relief. In the absence of an opiate, vomiting, either spontaneous or induced, usually gave relief.

Jaundice followed the attack of colic in ten cases (25%). At operation three of these had impacted stones in the common duct. In the remaining 30 there was no history of jaundice at any time.

In 20 cases (50%) gall-stones were found at operation. Thus there were 25% of those who gave a history of attacks of colic in whom no stones were found.

We found the same high percentage of women sufferers as observed by others. Thirty-three (80%) of our series were females. The average age was 45 years. The youngest patient was 16 years and the oldest 62 years. The average duration of symptoms was 12 years, the longest 35 years, the shortest 5 months.

It is interesting to note that of the 33 females, 32 were married and had borne children.

Thirty-six cases (90%) were chronic. In one of these there was carcinoma of the gall-bladder with metastases into the liver. In 4 the gall-bladder had perforated into the liver substance.

In four cases (10%) the symptoms were acute. In one of these tuberculosis of the gall-bladder was found. The patient also had a large duodenal ulcer. The gall-bladder was removed and a gastro-enterostomy done. In each of the other three a large distended gall-bladder filled with pus and stones was removed.

In two of the acute cases the gall-bladder was easily palpable, but in none of the chronic cases were we able to palpate it. Tenderness over the gall-bladder zone was elicited in 29 chronic cases (72%). Cutaneous hyperesthesia was too inconstant to be of any diagnostic value.

Two cases (5%) had been previously drained. In both cases there was a reformation of stones and recurrence of symptoms.

Routine fractional gastric analysis was made in 20 cases. Of these 13 (65%) showed a normal acid curve. The remaining seven cases showed hypoacidity. In no case was there a hyperacidity. In the diagnosis of cholecystitis gastric analysis is of negative value only.

A gastro-intestinal x-ray study was made in 20 cases (50%). This was done not with the hope of finding corroborative evidence, but to enable us to exclude organic disease of the gastro-intestinal tract. In a few cases the pylorus was pulled to the right and fixed. This was interpreted to mean adhesions between the gall-bladder and duodenum or stomach. We have not made a systematic effort to demonstrate the gall-bladder or gall stones in all cases, but where this was attempted the results have been disappointing. Since several roentgenologists now claim to be able to show the gall-bladder and stones in a large per cent of cases, our failure must be due either to faulty technique or to incorrect interpretation of the plates, or both.

We are impressed with the large number of associated chronic infections. Chronic tonsillitis was demonstrated in 25 cases (62%). In ten the tonsils had been previously removed. Infected teeth were noted in 17 cases (42%).

Chronic appendicitis was present in 34 cases (85%). In the 4 acute cases the appendix was not examined. Duodenal ulcer was diagnosed and demonstrated at operation in five cases. In all these the gall bladder symptoms antedated the ulcer symptoms by several years. Gastric ulcer was found in one case.

Any paper on gall bladder disease today would be incomplete without mention of the Lyon-Meltzer method of so-called non-surgical drainage of the gall-bladder. We have carried out this method of drainage in a number of cases, but so far our series is too small to warrant any conclusions of our own, either as to its value as a diagnostic procedure, or as a therapeutic measure.

In this condition, as in all gastro-intestinal dseases, an accurate history, we believe, should outweigh all the other evidence combined. But an accurate history will be obtained only by the painstaking physician. We sometimes fail to get an exact history because we do not allow the patient to tell her story in her own words. Many times the key to the diagnosis is missed because we talk to our patients in a foreign language. Often if a patient is asked if she ever had gall-stone colic she will answer "no"; but if asked if she ever had "acute indigestion" or "bilious colic," or "cramp colic" or "ptomaine poisoning" she will answer "yes."

In conclusion we would not be understood as discounting the value of the laboratory, especially the modern x-ray laboratory. Instead our patients should, so far as practical, be given the benefit of every examination that will make the diagnosis more certain. Yet there will always be many practitioners who cannot have ready access to these laboratory facilities. To them we would emphasize that with a carefully elicited history and a thorough physical examination alone, a correct diagnosis of gall-bladder disease can be made in a large per cent of cases.

## SOME OBSERVATIONS IN GALL BLADDER SURGERY.*

By C. P. Fox, Sr., M. D., F. A. C. S.,
Greeneville.

Has the last word been spoken in surgery of the gall bladder? Should the gall bladder be removed in all cases regardless of pathology? On the occasion of a recent visit to eastern Hospitals, we were impressed by the routine removal of all gall badders. No explanation was being made for the complete abandonment of cholecystostomy or drainage and the universal adoption of cholecystectomy. The question arises in our minds—has the gall bladder been proven a useless and only an offending organ to be ruthlessly sacrificed, without regard to possible consequences? Has it no function? Should we adopt cholecystectomy without further question? If the gall bladder has a function that may be important, how is this function to be supplied? Have these questions been satisfactorily answered?

The above questions seem pertinent in view of the apparent conflict of opinion expressed by authorities with equal opportunities for investigation. In order to reach a conclusion based upon our own experience, we have undertaken to review some 200 operations of our own, extending over a period of ten years. Among these 200 cases, we have had a number of the variously described types of gall bladders—the cattarrhal or mucous, the interstitial or thick walled, the hydrops, the gangrenous, the strawberry, and the calcareous.

In our earlier experience, cholecystostomy was always the operation of choice where conditions seemed at all favorable for drainage. Two reasons especially influenced us in favor of cholecystostomy—first, because most American surgeons were then draining gall bladders, and second, because cholecystectomy was a rather more formidable operation for one with my limited experience at that time. Cholecystectomy was, at that time, only done when the gall bladder had completely lost its function and was hopelessly diseased. In many of these earlier cases the gall-bladder walls were much thickened and definitely infected; many were of the strawberry type and showed areas of necrosis. If the gall bladder contained bile, or if bile appeared in the gall bladder during the course of the operation, it was left and drained. If it could be definitely demonstrated that no stone was impacted in the cystic duct, and the duct was not strictured, the gall bladder was drained. Among these cases we have not been able to find one who has had a recurrence of symptoms, nor one who has subsequently had to have the gall bladder removed. In all cases where a stone was impacted in the cystic duct, or the duct was strictured, or where the gall bladder contained only mucus and no bile appeared in the course of exploration, the gall bladder was removed.

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*Read at Annual Meeting of the Tennessee Medical Association at Nashville, April, 1921.

In only three of our cholecystostomys have we subsequently had to de a cholecystectomy, and in each of these we found a small impacted stone in the cystic duct, which was evidently overlooked at the time of the first operation. In each of these cases we find that our records showed the gall bladder failed to drain bile, and this we believe is always positive evidence of impacted stone or stricture of the cystic duct.

While this series of cases is not large, it seems to us to prove that it is neither necessary nor advisable to indiscriminately remove the gall bladder in all cases. The function of the gall-bladder may be preserved in practicially all cases where there is no obstruction of the cystic duct. Where there is a probability of the restoration of functon, our experience leads us to believe that the gall bladder should be preserved. We believe sufficient time has not yet clapsed to determine the ultimate results of removal of the gall bladder. Until recent years, cholecystostomy was apparently a satisfactory operation to most American surgeons and it was the exception rather than the rule to see a cholecystectomy.

Within the past few months we have had three cases in which cholecystectomy was done, by some of the most eminent surgeons of this country, and the patients were suffering from most distressing symptoms. One of these cases had been operated on five times for the relief of symptoms said to be due to adhesions, and in which only transitory relief had followed. Although she urged me to do something for her, I did not have the courage to open her the sixth time. One of the cases, who had had her gall bladder removed two years before, was suffering from attacks of pain, and all the digestive disorder which she had suffered before the operation. She appealed to me for relief and on opening her abdomen I found the pyloric end of the stomach bound firmly to the liver by adhesions; the common duct was strictured in its duodenal portion and was greatly dilated The head of the pancreas was indurated and presented to the touch the evidence of an interstitial pancreatitis.

In support of the conclusion that choleycystectomy should not be the operation of choice in all cases of gall bladder disease, I can not do better than quote from so eminent an authority as Dr. Mayo Robson. In a recent article discussing the indication for cholecystectomy he says, "I know it has been said that the gall bladder is a useless organ, very liable to infection, whose debased function is that of forming concretions and ultimately becoming cancerous. On the other hand, I would urge, it must not be forgotten that gall stones, though usually forming in the gall bladder, may arise in any part of the biliary apparatus both within and outside of the liver, and as a matter of fact I have seen gall stones developed in the dilated common duct two years after cholecystectomy. Whereas, in the very large experience of myself and several surgeons whose aggregate of cases of operations on the gall bladder amounts to 3,000, it is universally acknowledged that the recurrence of gall stones after cholecystostomy is an extremely rare event.

"Bile is being constanty formed in the liver at the rate of one ounce per hour, as I proved by a long series of observations some years ago, but it is normally passed into the intestines after food has been taken and is passing the pylorus, the sphincter at the orifice of the common duct only opening in response to stimulus of food passing the pyloric sphincter.

In the interval the gall bladder acts as a reservoir in storing bile and until it is required to neutralize the acid chyme and to help emulsify the fats. While the bile is in the gall bladder, mucus is added to it, and, from observations made in 1899, I know that the amount is considerable—72 c. c. in 24 hours. This serves the purpose of rendering the bile less irritating. A series of experiments performed by Dr. Flexner demonstrated the fact that if pure bile is injected into the pancreatic duct, it sets up acute pancreatitis, but when the bile is mixed with mucus the action is considerably modified, and when a certain amount of mucus is added, it no longer acts as a serious irritant. This would seem to prove that the admixture of bile with mucus in the gall bladder is important, and at least it is an expression of ignorance to say that the gall bladder has no useful purpose to serve."

It has been repeatedly demonstrated that the loss of the gall-bladder leads to dialatation of the common duct.. This seems to be nature's effort to provide for the storing of bile. The newly formed gall bladder would be as likely to become a reservoir for the development of concretions as the original gall bladder..

Dr. Robson says further that, in ordinary cases of choleithiasis cholecystostomy is a very safe and efficient operation, and if the ducts are cleared, there need be no fear of fistula or recurrence of gall stones.

Dr. A. J. Ocshner says in discussing the subject of cholecystectomy, in the Year Book of Surgery, 1920, that patients are coming back complaining of the very same symptoms they complained of before operation, and those who have had their gall bladders removed are coming three times as often as those who have had them left in.

The indications for cholecystectomy might be enumerated as follows: (1) contracted and useless gall bladders, (2) impacted stone in cystic duct, (3) stricture of cystic duct, (4) empyema of gall bladder, (5) gangrenous gall bladder, (6) calcareous gall bladder, (7) cancer or other new growth.

Cholecystectomy is contra-indicated in (1) all simple cases of cholelithiasis—when the gall bladder contains bile or bile appears after removing the obstructing stone, (2) all cases of obstruction of common duct which cannot be permanently overcome, (3) all cases associated with definite pancreatitis, (4) malignant disease of the pancreas, (5) cases where stones are formed in the liver and hepatic duct.

In view of the facts that recurrence of stones after cholecystostomy is a very rare event—not exceeding two per cent; that the mortality is definitely lower, even in the hands of the best surgeons, than cholecystectomy; that drainage of the bile passages after gall stone operations is definitely advantageous; that it is difficult sometimes to determine the existence of pancreatitis or a stricture of the lower portion of the common duct; that it is difficult also at times to determine the presence of stones in the hepatic duct; and the further fact that an obstructive jaundice or a pancreatitis or a malignant disease may develop in the pancreas, in which case the gall bladder would be a very useful organ, it seems to me that we have not yet reached the time when the thinking surgeon can endorse the removal of the gall bladder as a routine procedure.

When statistics are finally published to show ultimate results of operations, the indications are that they will be decidedly in favor of cholecystostomy. Then what will our answer be to those patients, whose gall bladders we have removed, with some inoperable disease obstructing the common duct, and whose gall bladders might have afforded some efficient means of relieving their cholemia and rendering life more endurable?

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## SURGERY OF THE GALL BLADDER*

By J. A. Crisler, M. D.,

With medical and surgical journals, new books on surgery and other similar literature, teeming with the expressions of the latest and best thought upon surgery of the biliary tract, one can not hope to add much worth while to an already near exhausted subject.

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*Read at Annual Meeting of Tennessee State Medical Association at Nashville, April, 1921.

Perhaps it will be more interesting to go into the matter directly as a personal equasion, giving you the advantage of the "ups and downs" of my own endeavors in the surgery of this region, which have been relatively large. The righteousness for an operation in this region, of course, depends first, but not entirely, upon the diagnosis and this is not always an easy matter, even in the hands of the most competent. There are more possibilities of error in diagnosis to be found in the right upper quadrant of the abdomen than in any other part of the human body. Not alone in the degree of pathological conditions that may exist in the gall-bladder and the ducts, but the inflammatory and other changes in the very adjacent orbans, are difficult to eliminate from apparent changes in the structures under discussion. Here we have to differentiate between malignant conditions of the pyloric portion of the stomach, the head of the pancreas and of the liver itself, to say nothing of ulcers of the stomach and duodenum, abscess of the liver, syphilis etc.

In spite of all of our refinements in diagnosis, even as practiced by our most finished internists, we quite frequently are unable to separate the diseases of the biliary tract from those of the adjacent structures mentioned. Except in rare cases the x-ray has proven of very little value even in the diagnosis of gall-stones proper, to say nothing of other changes in the gall-bladder. The man with quite broad experience in surgery of this region never feels a hundred per cent sure just what he is going to have to do until the diagnostic or exploratory incision has been well and widely made. A careful study of the kidneys and their functional activity, and of the heart in its every phase, is just as necessary for the patient's welfare, as properly performed surgery itself. Indeed so important are these organs in their relation to gall-bladder surgery, (as shown by Clifford Allbutt) until other examinations, such as a study of the blood, while important, take a minor place.

The first step in the operation itself, of course, is the incision, and you only have to refer to the literature on the subject to find that most every leader in surgery has devised a separate and peculiar incision. Very recently the transverse incision (Farr), which contemplates the entire severance of the right rectus muscle, has been advocated and in some cases has its advantages, but after all has been said, the one important fact remains that the incision must be well placed and of sufficient length and latitude to give a perfect exposure of the parts to be attacked, for this is one part of the body in which perfect exposure is paramount. We may encounter an enlarged liver with a small gall-bladder following Courvoisier's law, tightly hugging stones far removed from the peritoneal opening. This would also mean in the majority of cases that a stone was hung somewhere in the common duct, whether jaundice be present now or not. Just here I might add that the patient's risk is increased in proportion to the distance that the gall-bladder lies firmly fixed away from our peritoneal opening.

We hear a great deal about rotation of the liver downward, but personally, I do not take kindly to this procedure. The liver is an organ that is entirely too friable for much gymnastics. Perhaps the greatest single feature for success in this kind of surgery lies in our care and ability to thoroughly wall off the gall-bladder and ducts with moist gauze towel sponges, and this should be done in such a manner as not to crush and bruise the adjacent structures, but to thoroughly separate them so that if the gall-bladder is accidentally opened before we are ready to protect the outflow of its contents, its soilure to the surrounding neighborhood could not occur. The outcome of the case depends in a great measure on just how this is done. Some surgeons seem so anxious to attack their pathological findings before attending to this most important and vital step, until it is given secondary consideration.

Assuming that we are now attacking the gall-bladder tself, the next important step would be to get it thoroughly emptied without soilure even of our gauze towels. This can be done by placing smaller sponges between the gall-bladder and the large towel sponges that have been previously placed; then drawing off the the contents of the gall bladder as far as possible with the trocar, after which careful and frequent sponging wll take care of the remainder. It is my plan at this point to open the gall-bladder more widely and fill its cavity full of an iodine solution. After this step, I remove all of the calculi if any are found, and then sponge the gall-bladder out as clean as possible, then fill it with gauze wrung out of a two and one-half per cent iodine solution, and tightly close the rent made in the fundus with a strong ligature.

The next step then is to remove all of the surplus padding and packing, except that in the gall-bladder itself, wiping the gall bladder incision clean with iodine solution, changing our gloves and searching for a stone in the common duct. This is a very tedious and difficult part of the operation and to those of you who think that a stone, even though present in the common duct, can always be found, I can only say that it occasionally can not be done. It is sometimes more elusive than the "fabled bag of gold at the end of the rain-bow." However, when it can be located and brought up the duct, before an attempt is made at its removal, the large gauze sponges should again be brought into play. The remainder of this procedure is too commonplace to require further comment.

I am fully aware that the accepted technique of surgeons generally would be at variance to the above outlined procedure, owing to the fact that the gall-bladder and its contents are to be removed en masse where cholecystectomy is decided upon as the operation of election. It must be admitted that however skilled a man may be, once in a great while he will accidentally open a gall-bladder, thus permitting the contents to escape and perhaps overflow the coffer-dammed area and infect his surrounding parts that are rich in lymphatics and add a mortality to his record, where it could be avoided. As in surgery in any other part of the body, judgement stands higher than mechanical skill and just here we are confronted with two or three problems that have not been definitely settled to the satisfaction of the so-called "master minds in surgery."

One great clinic practices and recommends the removal of all gall bladders that require surgery, except those that are in a condition of phlegmonous inflammation. Their attitude toward these is to drain them and do a secondary operation for their removal. In my practice I invariably remove these phlegmonous gall-bladders because this step seems to my mind more necessary here than under any other condition, and I am glad to state that so far I have not had the slightest trouble from the removal of quite a number, following the technic of protection to the tissues previously outlined, nor have I ever seen any spread of the inflammatory process take place in the liver or other structures.

There is another great clinic who thinks that only a certain per cent of gall-bladders should be removed and that the others should be subjected to the usual old drainage method. I personally lean to the idea of strict conservatism when I am confronted by the problem of whether to do a cholecystectomy or cholecystostomy. All great epochs in surgery have swayed from one extreme to another like the swing of the pendulum and in the matter of cholecystectomy as a routine surgical procedure, without regard to the future usefulness of the gall-bladder to the human economy, is from my viewpoint unwise.

Now any surgeon can recognize a thick gall-bladder, whose muscular structure has been practically replaced by fibrous tissue, and whose mucosa is not much better than scar tissue, and whose function as a reservoir for the bile to be held and expelled has ceased to exist; but there is a type of border-line cases that look too good to be removed. On these cases I have practiced irrigation, the same as one would do in an infected urinary bladder in preparing a patient badly infected for the second step in a prostatectomy. I have practised this antiseptic irrigation for about five years on selected cases, that is to say cases that still have the muscular structure of the gall-bladder intact and the infection confined to the mucous membrane, whether they contained stones or not.

B. B. Vincent Lyon (The American Journal of Medical Sciences, October, 1920) following Meltzer's lead, who did experiment on dogs, is draining the gall-bladder by what he terms a medical process by means of a duodenal tube through which he irritates the duodenum with a solution of epsom-salts, causing the common duct sphincter or muscle of Odii to relax and an outflow of bile to take place. He feels that he is able to state that he can get bile from the common ducts, from the gall-bladder itself and from the hepatic ducts. His method has the recommendation of being harmless to the patient and is being practised more or less extensively by most of our leading internists. Just how successful they will be in treating the border-line cases remains to be seen. It does not appear to me that they will be able to permanently clear up an infected gall-bladder. Certainly, of course not, if calculi are present to help the recesses of the mucosa harbor the bacteria. The same process might be applied to urinary sphincters, hoping to cause a more decided flow of urine from the kidneys, ureters and from the bladder itself, thereby washing out more of the bacteria from the urinary bladder preparatory to doing a prostatic removal, thus eliminating the necessity of doing a cystostomy, as is now generally done as the first step toward this procedure. I do not believe that the best informed genito-urinary surgeons would accept this subterfuge as a wholesome replacement of the now accepted preliminary measure of cystostomy.

To boil the matter down to the last analysis from the surgical viewpoint, the answer seems to be as follows: In dealing with the gall bladder or the urinary bladder, an opening must be made into the viscus direct, where continuous drainage can be expected without depending upon the vagaries of either the muscle of Odii or the sphincter of the bladder to play any part whatsoever. From the physiological standpoint, the urinary bladder and the gall bladder are both to be classified as convenient reservoirs for the reception and convenient retention of excretions from the kidneys or from the liver, as the case may be. The anatomical variations are too pertinent to mention except to say that the urinary bladder, under ordinary conditions, can be afforded continuous drainage by the use of some form of catheter method, without necessitating a surgical operation. The gall bladder cannot be thus evacuated. Lyon's method, however successful during the act of irritation, cannot be continuously given. Neither method can be classified as the last word on drainage on account of the fact that they are more or less indirect. Let us be charitable enough to say that both methods are possessed of some slight advantage over previous negative efforts. That is to say, over methods that are purely dependent upon medicinal means without some form of mechanical intervention. Both methods are advantageous for diagnostic purposes and for affording temporary relief. The man who invented the catheter should have a niche in the House of Fame and beside him should sit, about knee high, the man who invented the duodenal tube.

It is a well known fact that there is little danger, if any, of carrying solutions through a cholecystostomy opening into the intestinal tube, however poisonous they may be. For irrigation purposes I have used a one per cent. solution of tincture of iodine in sterile water in proportions of a pint a day, irrigating twice daily. I have, however, more latterly been using Dakin's solution in the same amounts with eminent satisfaction. While I am not ready to give an accurate and detailed report of the series of cases, it might be interesting to briefly outline a short report of one case, the examination, history and diagnosis of which was kindly furnished me by Drs. McElroy, McGhee and Cullings, who had previously studied the case.

"February 4th, 1921

Mrs. W. D. Price, Clarksville, Miss., Referred by Dr. W. C. Glass.

Age 40—married—housewife.

Chief Complaint: Palpitation, especially at night.
Fainting spells.
Feeling of distention, nausea and vomiting about one-half hour after eating.

Family history: Father alive and well—mother ill with rheumatism.

Past history: Measles, mumps, pertussis, typhoid fever ('14), Flu ('18), has not been well since. Retroversion of uterus ('18). General health until two years ago good. Menstrual history 12 years—regular—28 days—1-3 days. Suffers more with heart and weakness during periods. Missed 6 mos. after "flu"—2 children, 9—5. 1 miscarriage before first child—2 mo.

Present Illness: Has not really been well since flu but only actively ill for past six months. Smothering feeling, palpitation, especially at night, spell last only a few minutes, but sometimes she will have one spell after another all night—loses consciousness easily. After every meal about half an hour, feeling of distention, heart palpitates and has smothering feeling and relieved by vomiting and soda. No pain, just distention and pounding of heart. Marked shortness of breath and palpitation, no swelling of feet and ankles. Resp. negative—constipated—appetite very good, but is afraid to eat because such discomfort always follows—craves sour food—has often noticed bile in vomitus. Headaches, temporal, occasionally dizziness, tingling and numbness in hands. Pain in sacral region, radiating to left lumbar.

Laboratory findings:

Lyon-Meltzer—

1. Fasting stomach—10 cc.—colorless—mucus 2 plus—occult blood 1 plus—acid—free HCl 6, Total acid 24—Micro; Pus and epith. 2 plus.

2. After astringent—very little mucus.

3. Duodenal content—Yellow, with mucopurulent flakes—occult blood, 1 plus.

A. Bile—Light yellow, cloudy with mucopurulent flakes. Micro: Amorph. material—epith. 2 plus—pus 2 plus—rare R. B. C. motile bacilli. Culture B. Coli.

B. Bile—Cloudy—yellow with purulent shreds—Micro: Amorph. material—pus and epith. 1 plus—few bacilli—Culture B. Coli.

C. Clear, yellow, few purulent shreds—Micro: Amorph. material—rare epith.—Culture B. Coli.

Gastric analysis:

Dock breakfast—retained 45 min.—40 cc. colorless, well digested—occult blood 0—small amount of mucus—lactic acid 0—free HCl 39—total acid 50, Micro negative.

Physical Examination:

Fairly well nourished—weight 144—5ft. 6in. —skin subicteric—hair, eyebrows, hirsute heavy, much dental work—second upper left bicuspid infected. Slight submental adenopathy, left; neck otherwise negative. Respiratory: Movements full and equal on both sides. No impairment of percussion or auscultation. P. M. I. 5th interspace, midclavicular line—no thrills, no shocks, no enlargment of cardiac area to right—nor supra cardiac dullness. On lying down, slight diastolic shock, accentuated 1st., sound, apex. Presystolic roll and slight systolic murmur—is not transmitted to axilla, nor heard in the back. Abdomen—Flaccid, marked tenderness over Mayo-Robson point on deep inspiration.

Laboratory Findings:

Blood—Polys 67—S. M's 31—L. M's 2.

Urine—Light yellow—sp. gr. 1020—acid—alb. and sug. negative—Micro. Amorph. mat.—rare pus and epith. cell.

Feels very much better since she has been taking bromide and elixir of valerianate of ammonia.

Diagnosis. Cholecystitis — chronic cardiac valv. disease—mitral stenosis.

This patient had lost 96 pounds in weight during the past twelve months and at the time of operation weighed 144 (her previous weight being 240 pounds over a period of several years) and on account of her mitral stenosis with its concomitant symptoms of shortness of breath upon the least exertion, dyspnea etc., it was deemed unwise to attempt the operation with a general anaesthetic; so it was done under local anaesthesia, a 2% novocain being used, precceded one hour by a hypodermic of morphine and hyoscin. Two large stones were removed from the gall-bladder. Fortunately for the patient the gall-bladder was, from a macroscopical standpoint, not hopelessly diseased, therefore drainage was given the preference over removal. Three days later, following her operation, a specimen of bile was submitted to Dr. McElroy's laboratory, taken directly out of the drainage tube into a sterile bottle, and still showed such a bacterial content that the pathologist wrote me that "the bile evidently had become extraneously contaminated, showing many different kinds of bacteria. Morphologically B. Coli. Staphylococci etc."

However, this bile was taken under the most aseptic precautions and evidently was not extraneously contaminated, but represented the true condition. Irrigations of the gall-bladder were instituted on the morning of the 4th day, Dakin's solution being used through a small catheter introduced loosely through the drainage tube, and continued twice daily until the tenth day when it was discontinued and on the morning of the eleventh day following the operation, Dr. Schmittou, another pathologist, gathered the bile direct from the gall-bladder and made a study of the same with the following report:

"March 1st, 1921.

Mrs. W. D. Price, Clarksdale, Miss.

GALL-BLADDER MATERIAL: Stained smear of greenish yellow bile does not show the presence of bacteria, an occasional polynuclear leucocyte being present.

CULTURES: 72 hour cultures do not show the presence of a growth of bacteria."

This case is reported in brief detail and is measurably parallel with numbers of others regardless of the bacterial findings. The woman left the hospital on the fourteenth day, having gained ten pounds and, as she expressed it, "able to eat anything and everything (which had not been previously possible) and always hungry." The tube was removed on the twelfth day and on the fourteenth day the external drainage had practically ceased.

None of these cases have reported any unfavorable symptoms since they left the hospital. I am not, however, ready to make a final report or advocate this as a routine treatment, but merely recite it to show what I'm doing in this direction.

This method of treating the milder cases of mucous-membrane infection is certainly more conservative than a cholecystectomy and, as far as I know, is my own invention. However, this question naturally arises: Why should a suspicious gall-bladder be left at all when cholecystectomy is practically as free from mortality as a cholecystotomy, while at the same time the morbidity element may be eliminated? We can probably answer this question by asking another just as pertinent. Is an individual as well off without a healthy gall-bladder as he is with one? As far as I know the absence of the gall-bladder does not weigh heavily against one. It is well known that the common and hepatic ducts dilate to a size almost commensurate to the size of a small gall-bladder and this may not be a disadvantage.

There is one hazard in the performance of a cholecystectomy, if not indeed two hazards, that must always be met with a great deal of care. The first is that of hemorrhage. The cystic artery is large enough to exsanginate the patient if left untied or if the ligature should by any means come off the vessel. The other hazard lies in the fact that the anatomical relations between the cystic duct and the hepatic and common duct are not always uniform by any manner of means. (Eisenendrath, Bevan and others). The recent journals the past few months have been full of such warnings, together with the reports on anatomical laboratory investigations showing especially that the hepatic portion of the common duct can be easily tied in doing a cholecystectomy. Less than a year ago this unfortunate accident happened to the writer, wherein the cystic duct and the common duct were tied together and the cystic duct severed leaving the common duct still tied and the condition unrecognized until jaundice developed a few days later. Happily the vis a tergo from the liver forced a passageway and abundant bile drainage was established through the old wound, clearing up the jaundice, after which a successful anastomosis was made wth the duodenum, which gave relief. While this is an avoidable occurrence, it will sooner or later come to almost every man who does a good deal of this kind of work, however careful he may be, and can happen from litigating either the cystic duct or the artery. Not alone can this unfortunate accident happen to plague the surgeon to the uttermost, but as before stated, a stone in the common duct can hide in that portion that frequently pierces the head of the pancreas and be tremendously elusive. Then on top of these troubles, we must not forget that stones can come down out of the smaller liver ducts into the hepatic ducts and on down into the common duct and block up the outlet when we would least prefer to have it done. I have in mind one case especially wherein several stones had been removed from the hepatic and common duct and the gall bladder entirely removed, with the patient in perfect health for over a year, when suddenly she was stricken by the old "tell tale" pain, followed by jaundice; when a later operation revealed five or six surprisingly large stones in the hepatic part of the common duct, several of which extended beyond the exposed portion on into the liver. Perhaps its was lucky that the gall-bladder had been removed, because the hepatic duct was sufficiently large now to admit the little finger and the stones were successfully located and removed.

To emphasize the subtle points in the paper, may I not be permitted to say to the members of my home State Association, without reflection upon the splendid men who have "blazed the way" and have made the pendulum swing from a negative point into what I am pleased to call extremes, and with all due respect, that the distance between cholecystectomy and cholecystostomy will not remain negligible and that this is not an idle prophecy.

### DISCUSSION.

Dr. Eugene J. Johnson, Memphis: With reference to the disease of the gall-bladder and the surgical technic of handling these cases, I will say that the ground has been very thoroughly covered by the different essayists, generally speaking, and my remarks will be confined very largely to the technic of removal of those gall-bladders where we deem it necessary to take them out.

Instead of opening the gall-bladder, as was brought out, in every instance I open those that I see, those that are bound down and are of the fibrous type and are brittle, where you feel the probability of breaking the gall-bladder and having a leakage of some of its contents into the peritoneal cavity, possibly getting an infection. It is well, as was brought out this morning, to pack off with sponges, having a wide opening and cleaning it out, that is, in the thickened gall-bladder where there is considerable inflammatory exudate binding it down to the hepatic and common ducts. To open these up and clean them out you can make a definite dissection without encroaching upon either the hepatic or common ducts. In small gall-bladders I use sponge forceps, and at the fundus, and one at the cystic duct, and lift it well up, and with the blunt point of the forceps dissect off the cystic duct, exposing the cystic duct and cystic artery. Then I clamp the cystic duct above and below and divide the duct. You have the cystic artery, and I divide that by simply splitting up the peritoneal fold, dissecting it back with the end of the scalpel under the gall-bladder, peeling it out in a nice way, dissecting it away, leaving the peritoneal fold and closing over raw surfaces after the gall-bladder is removed. You can tie the cystic duct independently. You can see the cystic duct, tie it off, and independently ligate the artery. This technic of exposing the cystic duct and artery brings into anatomical view the whole situation, and you know you are not carrying the needle in such a way as to sew the artery, and in that way there is no danger of getting the hepatic duct. I have found that to be a very simplified technic and the case can be easily handled without any trouble.

With reference to the gall-bladders that we should leave and those that we should drain, it is a serious proposition. The pendulum has swung toward the removal of the gall-bladder. Speaking personally I have had cases come back giving this history, that they have been benefitted for a period of months or years, but the same symptoms have returned after drainage of the gall-bladder. These patients come back and on examination I find the gall-bladder in a worse condition than it was before drainage. I think adhesions following the removal of the gall-bladder are due to a faulty technic to this extent that in many instances we are not careful in trying to protect the parts and in covering raw surfaces so as to guard against adhesions. I bring the peritoneal folds over and close down around the common duct. In that way I have had fluoroscopic examinations made of the stomach and have had the patient come back to see what the stomach was doing, and also to see if there was any passage of food and if there was any bearing down about the pylorus to interfere with the stomach. In a mechanical way, I believe with more care in our technic in getting out and in covering raw surfaces we guard against the formation of adhesions.

Dr. W. O. Floyd, Nashville: Just a few words in discussing the operative side of these gall-bladder papers, with especial reference to the removal of the gall-bladder. This is an old question, but one that is continuously being rehashed. The pendulum has swung from one side, too far in the opposite direction apparently at the present time, and yet the question is debatable, and many things can be said either for the removal of the gall-bladder or for leaving it in, in certain cases. But it seems to us that in most cases out indications at the present time are practically very clear cut.

Of course, no one would probably deny that a person is better off with a good gall-bladder than without any, because certainly the gall-bladder has some function; if this were not true we would not find nature making an effort to right things, in a way, by making a gall-bladder out of the common duct after the gall-bladder has been removed. Under these circumstances there is no doubt that stones may sometimes form in the common duct, and I dare say that some of you have had the experience of removing them. We have had such an experience. I recall one instance in which we removed several stones which had formed in the common duct and back in the hepatic ducts. So far as I know this patient has had no further trouble.

Speaking from the operative side of this question, I think we should practice conservation in gall-bladder surgery. As indicated by my own report, of all gall bladder pathology for which we have done surgery in the past five years, 77 per cent of the cases have had stones, which proves that we have not been promiscuously removing gall-bladders that have had infection, or in other words a cholecystitis only.

I believe the indications for drainage are very clear in three types of cases.

First, the gall-bladder cases associated with an acute pancreatitis ought to be drained regardless of the condition of the gall-bladder, whether the gall-bladder is only inflamed or whether it is thickened walls with stones, we can relieve the pancreatitis quicker and better by drainage of the gall-bladder. We have however, had this experience in two of our recent cases where drainage was instituted for pancreatitis. The gall-bladder symptoms continued after drainage ceased, and we had to go back and remove the gall-bladder to relieve the patient of these symptoms.

Second, if we are unfortunate enough to have explored the case during the acute attack, when everything is full of infection, when many glands are present about the ducts and the process is very active, if in the majority of these cases you remove the gall-bladder you add an extra risk to your patient and your mortality rate will be higher. I believe that cholecystitis at this time should be drained even if you have to go back later and remove the gall-bladder, because I believe it is safer at this particular time to drain than to remove. We all realize that this type of gall-bladder ought to be removed but it is a bad time to remove it. If we can avoid operating at this time, we should do so, and tide the patient over the acute attack but you can not always do that. The patient sometimes continues to have severe attacks and become very sick, and the question of a rupture may come up and you may have to operate so to speak in self defense. You should then drain.

Third, in those cases in which stones exist, I believe practically all of them would be better with the gall-bladder removed, unless it be the type of gall-bladder that contains only a single stone or two and whose mucous membrane or walls do not show microscopic evidence of disease. I believe that in this type of gall-bladder the stones can be removed and the gall-bladder drained. We have had several such cases that have done well following drainage.

On the other hand, gall-bladders with stones as above mentioned and gall-bladders that have a very marked hyperplasia of the walls, a chronic thickening with a whitish or pale appearance of the fibers, I believe should be removed.

There is one other thing that I would like to mention in connection with drainage, and that is the question of malignancy forming upon an old, diseased gall-bladder that has been left in. Those of us who have had much surgical experience with these cases know that we have had to go back and remove gall-bladders that were formerly drained. We have had the experience of going back to remove one such gall-bladder and were surprised to find that it had developed into carcinoma in the meantime. Such cases, however, are rare and really do not offer much of an argument against drainage but one must consider this possibility when trying to decide as to whether to drain or remove.

Ordinarily speaking, I believe that where you have a gall-bladder that is macroscopically diseased with the three exceptions mentioned above, or a gall-bladder containing stones, I believe it is better surgery to remove it.

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Dr. William Britt Burns, Memphis: I was glad to hear from the discussion that the pendulum is swinging back to a little more conservatism upon the question of removal of the gall-bladder.

I remember some fifteen years ago this same subject was discussed pro and con as it has been in the last few years. First, from cholecystectomy to cholecystostomy and back.

I am sure there are many accidents attending the removal of the gall-bladder. I remember very well a case of gangrenous gall-bladder in which the gall-bladder was removed, the cystic duct properly covered and the cap closed, and the patient made an uninterrupted recovery, and really remained in the hospital a week longer than necessary for recuperation. He was an athletic kind of fellow, and after he got out of the hospital he began walking long distances. At the end of the fourth or fifth week in stepping down from a rather high coping onto the street he pulled the cap off the cystic duct, and of course had great pain, which was followed by peritonitis and death. I am sure this cystic duct was properly closed together with the added fact that he went four weeks without any untoward symptoms. It shows that many times we may have such accidents.

I recall another accident of peculiarity. I had operated on a woman several times for other conditions, one condition being appendicitis, which was verified by the microscope. In cutting down upon the gall-bladder, which was apparently filled with a rather thick bile, I was able to express the bile from the gall-bladder in making manipulation, and her husband being a doctor and standing by, it was agreed that I should not open or remove the gall-bladder. Two or three days later she vomited a very large round worm. I am not sure that the round worm was in the gall-bladder, but we have record of such cases.

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Dr. E .M. Holder, Memphis: The question of gall-bladder surgery and the medical treatment of gall-bladder diseases is worth while. I really had hoped that Lyons by his efforts would give to the medical man a valid and rational treatment for gall-bladder disease.

The surgical side of the question is not eitirely free from operative mortality; certainly, not free from morbidity.

One of the complications I have not heard mentioned by any of the essayists is acute dilatation of the stomach following operations upon the gall-bladder or upper abdomen. Howard Kelly says it is one of the tragedies of surgery. A patient may be doing nicely for twenty-four or forty-eight hours and naturally you think or expect a favorable outcome, but when you go back you find collapse, pulse practically imperceptible, skin cold and clammy, profound shock and vomiting copious quantities of spinach material. She dies. You may have a hemorrhage following operation for gall-bladder disease, where there is jaundice particularly. In the standardized hospitals of today the coagulating time of the blood is determined before operating, so that we may try to avoid this one danger of hemorrhage. We sometimes tie off the common duct. I have known that to be done, although I have never done it myself. We never know when it will occur, however painstaking we may be. In a few days you have to go in and make an anastomosis between the dilated duct and duodennm, and that is not a good idea, because experience has shown that when an anastomosis is done far down in the intestinal tract you get bacterial infection of the gall-bladder tract. If you anastomose the stomach you get the effect of the acid along the tract of the anastomosis, which is not desirable.

So there you are up against a problem. The man who cuts rather deeply, who is too cocksure as Dr. McSwain said in his paper, may carve himself to fame incidentally, and his patient to immortality. You have to think about these things before you decide. The surgical treatment of gall-bladder disease therefore is not entjrely free from risk.

What are we going to do with patients 45 or 50 years of age? Usually, four out of five women with thickened abdominal walls take on fat. They have borne children and occasionally have an attack of gall-bladder colic. They may or may not have been jaundiced. They go along for a few days or a week with this pain and it is followed by soreness which lasts a few days longer and they are over the attack. They go along for six months or two years, may be five years, and then have another attack. Are all these cases surgical? Is it possible to cure that kind of cases medically? That is what we are longing for. If they can be cured medically, well and good. But she may have cholecystitis without stone formation. It is barely possible that Lyons or some one will give us a way to cure that patient. She is not particularly a good surgical risk. Mortality and morbidity would be items to consider in such cases. What you judge should be done in your own case is what you should do for your patient. It is a surgical disease, but it is possible with proper care of the mouth by prophylaxis, by dental hygiene, we may get away from so many diseased conditions of the gall-bladder. It is possible by the correction or removal of focal infections of the body outside of the mouth, we may lessen attacks of gall-bladder disease as well as attacks of appendicitis. That is worth while to think about. In some types of cases that are not absolutely surgical, there may be some medical means present, that will favor recovery.

The question of removing the gall-bladder, like the removal of the appendix, has been before the profession so long that it seems hackneyed. If any of you had to be operated, I doubt if you had a vxed opinion from your medical man whether you would want your gall-bladder removed or drained.

I read a paper before the Tristate Medical Society at Memphis in which I stated that some surgeons in this country and in Europe are doing fewer cholecystectomies than they did five years ago. The school that has been rather radical, probably well throughout, has been led by Charlie Mayo is doing almost exclusively cholecystectomy. Many other men, who are less radical, are doing cholecystostomies. The whole thing is going eventually to resolve itself into this: If the gall-bladder wall be irreparablly diseased, remove it with the gall-bladder, but if the gall-bladder is not diseased, why should we take it out? Even if there be a catarrhal cholecystitis, let it alone. I would rather have the living patient with a gall-bladder than a dead one without it. Think it over. The mortality is greater from cholecystectomy. Again, accidents are more frequent from cholecystectomy than from cholecystostomy. It might be well, after opening the abdomen, to take an aspirating needle and introduce into the gall-bladder and draw out some of the bile. Willy Meyer was the first to do that, and to send the bile to the laboratory and get a report as quickly as possible the same as you would get a report from a frozen section. If it is bacterial infected bile, then you are left to confirm your diagnosis, and after that you must decide on the condition of the gall-bladder wall and whether or not it is a case suitable for the removal of the gall-bladder or for drainage.

Dr. D. T. Kimbrough, Nashville: In connection with the gentleman who spoke of withdrawing a specimen of bile I recently had a case in which a drainage operation was done, and we found the gall-bladder infected, with a thick inspissated bile about the consistency of glycerin. We kept up drainage for 21 days and then closed. But the woman was not relieved of her symptoms, and after treating her for several months, I introduced a duodenal tube and succeeded a number of times by that simple procedure in withdrawing bile and proving there is still infection. The question arises whether there is a chance to cure that woman by draining with a duodenal tube. This morning I drew off two ounces of bile for Dr. Litterer to examine with the idea of draining that gall-bladder frequently with a tube and also to use an autogenous vaccine in conjunction with it, giving also iron with a little glycerin and bichlorid of mercury and salol. The question arises in my mind if you can accomplish as much with the tube as with a drainage operation you can prove beyond a doubt whether or not the infection is in the gall-bladder.

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Dr. H. L. Fancher, Chattanooga: The question of cholecystectomy versus cholecystostomy is not one that concerns the surgeon at the present time, in my opinion. Taken as a whole, it is a question that should be considered by the individual surgeon in each individual case. We know that if an infected cavity can be collapsed and drained, no matter where it is in the body, we can get rid of most infections. If the cavity can not be collapsed, although it is drained, we are never sure of ridding that cavity of its infection, although we do know that the system establishes a certain amount of immunity against most infections, which may be maintained,—such as infections of the gall-bladder. So after all, it seems to me we should lay less stress, in a general way, as to whether the gall-bladder should be removed or left in and drained, and pay more attention to each individual case.

Dr. Holder in speaking a moment ago put the question to you personally. If you had a gall-bladder, would you rather have it removed or drained? That question should be decided in each individual case. So referring again to Dr. McSwain's paper on cock-suredness, I don't see how any one surgeon can say definitely whether a gall-bladder should be drained or removed, before operation, but let him open up the patient, see the condition, note the pathology, note the patient's resistance, and determine how long it will take to do either one of the two and what his patient's resistance is going to be. In one case he may determine it would be better to remove the gall-bladder, and in another case determine it is to the patient's best interest to drain. In a simple case the mortality would not be greater whether you removed the gall-bladder or drained it. The more complicated and worse the case, ordinariliy, we say the indication is to remove the gall-bladder, but the mortality would be higher. So summing up the situation, so far as my practice is concerned, it is largely a question of individualization.

I never try to determine, until I get in and take a general survey of the upper abdomen, what procedure to undertake. We know, as a rule, thickened gall-bladders, after drainage, go along without symptoms for years, whereas if you remove such gall-bladders you will have adhesions that will give you symptoms later. I think we should pay less attention as to whether or not to remove the gall-bladder, and not lay down definite rules by which to guide our action, but to sum the matter up after opening the abdomen, for each individual case and determine then and there what is the best course to pursue.

Dr. Otis S. Warr, Memphis, (closing the discussion on his part): In regard to the Lyon-Meltzer method of non-surgical drainage of the gall-bladder, after further use of this method we will find that it has a definite place both as a theapeutic measure and as a diagnostic procedure, but at the present time I think it is likely to leave us with a false sense of security, especially in acute cases.

Dr. Frank Smithies recently reported a series of 300 cases, some of which were acute cases in which he was able to secure complete relief after a few drainages by the Lyons method. I think in that kind of case we are likely to go wrong and allow the proper time for surgical interference to elapse. In the more chronic cases we take no risk in giving the patient the benefit of a doubt. If we can relieve him by a non-surgical method it is at a great deal less risk.

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Dr. W. O. Floyd, Nashville, (closing the discussion on his part): With reference to the percentage of stones shown, it is the concensus of opinion that a very high percentage of gall-stones can not be shown. In view of the fact that we have shown a considerably higher percentage of stones, we have waited a considerable time to make any such report. In other words, we have been working on this problem for five years, and we did not feel like reporting on a few cases. We wanted to test the thing out thoroughly before making a report. In the beginning of this work Dr. Haggard was just as skeptical as any of you, and the so-called typical cases I did not have a chance to ray. The reason I did not have a chance to ray them was this: If you ray a patient that has gall-stones and do not find them, the patient doubts his having them. You must show the stones or the patient does not want any operation. Patients that come in with the typical symptoms, you or any other surgeon would believe that they needed operation.

I did not get many typical cases. I rayed a few questionable ones as well as a few typical cases when Dr. Haggard was away, and I had good plates showing stones. From that time on we have rayed more doubtful gall-stone cases in an effort to show them, and that has continued up to the present time, until with this number of cases we really believe there is a deal of merit in it, and it is quite an additional diagnostic aid in our equipment. I don't believe that a man with the average x-ray technic used for ordinary x-ray examinations can show more than 50 per cent of stones. It is a very tedious, painstaking, careful, slow technic that must be employed. It can be done and many stones brought out. Other men who have rayed a good many cases with special effort will give similar reports. Raying these patients has been a big help to us especially in the neurotic and atypical cases, but we do not do it as a routine practice.

Dr. C. P. Fox, Greenville, (closing the discussion): I enjoyed seeing Dr. Floyd's plates. We have been doing a little work along that line in my little hospital for the last two years, but we have not been able to show the percentage of stones that Dr. Floyd has shown because our technic is not as good.

We attach great importance to the evidence of adhesions in the neighborhood of the pylorus and duodenum when the x-ray does not show any evidence of duodenal or gastric ulcer.

In reference to cholecystectomy versus cholecystostomy, I believe any man's opinion can be measured pretty well by his training and education, his experience and his ability to profit by observation.

One thing that led us to bring this matter before this Association was a recent discussion of the radical removal of all gall-bladders regardless of the pathology. When we thought about our own experience and remembered that some years ago, when we had much less experience in gall-bladder work than we have now, how often we have gone into the abdomen and found a badly diseased gall-bladder which we were afraid to remove on account of the primary mortality, and how often we adopted cholecystotomy in those cases, and observing them since we have found them free from symptoms and quite as comfortable as many of the patients on whom we have done cholecystectomy. We were persuaded that cholecystectomy was not an operation of choice in many cases. On the other hand we tried to point out in our paper definite indications for cholecystectomy and cholecystotomy, as well as the contraindications. We all know that many surgeons are stating that in the acutely infected gall-bladders it is dangerous to take them out but drain them and take them out afterwards. Some of these patients have been free from symptoms afterwards, and it is unnecessary to take out their gall-bladders. My experience has led me to believe that where we have a gall-bladder that is actually not functioning, and we are not sure function can be restored, cholecystectomy should be done, and we are doing it. My opinion in regard to cholecystectomy has not been influenced so much by my own personal experience, because so far as I know the patients in whom cholecystectomies have been done have been as free from symptoms as the average case.

One thing of importance to prevent symptoms following cholecystectomy is the technic of the operation which I did not go into but which Dr. Johnson brought up, and there are a few things I want to say with reference to it. I do not believe it is ever advisable, if you know before hand you are going to do cholecystectomy, to ever open the gall-bladder. The first thing I try to do when I get into an abdomen, is to free the gall-bladder and the ducts as far as possible from adhesions. I know we are told by some good operators it is not wise to break up adhesions too much. I try to free them and examine the gall-bladder and if I am convinced it is a case for cholecystectomy, I do not open the gall-bladder. There are certain cases in which I believe that the operation of dissecting the gall-bladder from the fundus toward the duct is the safer operation. When you can not be quite sure of the point where the cystic duct enters the common duct, where you can not be sure of your anatomical relations, I believe it is far better to take a chance of the hemorrhage you get and dissect the gall-bladder down from the fundus until you have reached the cystic duct. you are not likely to injure the common duct. I have never in any cholecystectomy injured the common duct. When I uncover the gall-bladder, I put a clamp on the cystic duct without injuring the common duct, I always try to begin from below and dissect the gall-bladder from below upward and with that technic there are not likely to be any adhesions.

## SOME COMMON ERRORS IN DIAGNOSIS.*

By Hilliard Wood, M. D., F. A. C. S., Nashville.

Errors in diagnosis lead to errors in treatment. We have all seen such errors, both great and small. I have often felt that the difference between doctors is the difference in their ability to make a correct diagnosis; and in the case of any one of us our success in handling any particular disease will usually be in proportion to the accuracy of our diagnosis.

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*Read before Section on Ophthalmology and Otolaryngology at Annual Meeting of Tennessee State Medical Association, at Nashville, April, 1921.

A correct diagnosis is not limited to naming the principal disease which a patient has. This is often only the beginning. A correct diagnosis should include not only the principal disease, but all other diseases that are related to the principal disease. It should include a correct knowledge and appreciation of the patient's habits, occupation and environment, and their effect upon his disease. It includes the subtle, and often overlooked inbuence of heridity. In short, a correct diagnosis includes not only a knowledge of the actual pathology present, both primary and secondary, but a just appreciation of all the influences that may promote or retard convalescence. It includes much that is usually placed under the head of etiology; and where several diseases are present in one patient, their relation, whether one of accidental association, or of cause and effect, should, if possible, be determined.

At times a near diagnosis is made by naming a symptom, as headache or neuralgia. Now pain is probably never a disease, but always a symptom. No diagnosis is complete until the primary underlying pathology is known and appreciated Often the pathology in the eye is the second, third or fourth step in a pathologic process, and yet may be the first to be recognized, as in renal retinitis, the primary cause of which may be a septic faucial tonsil.

It is both interesting and beneficial to trace pathology forward and backwards until we can see the beginning and, in sequence, each succeeding development, and can visualize the pathologic process as a whole. Such a diagnosis requires time, and in our crowded moments we often feel that we cannot devote the time necessary to make it; yet I believe in the end time is saved by doing so. It is not the quantity of work we do, but the quality; it is not the number of patients we see, but the thoroughness with which we work out each individual case.

A difficulty sometimes met with in making a correct diagnosis is in the case of patients who object to giving sufficient time for the work to be done. That is in a measure pardonable in the laity, who frequently do not know any better. But what shall we do with the physician who accompanics his patient to our office and who wishes an operation done immediately so he can catch an early afternoon train home? Just how in this case we are to make a careful and thorough examination and a correct diagnosis, and yet accommodate the patient's physician, is a problem.

The first step in a correct diagnosis is a detailed history with each development placed in its proper chronological order. This should be written and made a part of the permanent record. The history should as carefully exclude errors as it includes facts. As histories are purely subjective, they may, even when carefully taken, need to be modified as the subsequent examination proceeds. In connection with histories, a review of previous records of the case, when available, is often helpful.

In making the examination, too great stress cannot be laid upon the greater value of objective as compared with subjective symptoms. While the subjective examination is first in time. it is second in value The objective examination affords far more protection against errors in diagnosis than the subjective. My belief is that the subjective examination should be interpreted in the light of the objective. Fortunate is the doctor when he can make a diagnosis independently of the statements of the patient.

In making a diagnosis, instruments and methods of precision are of the greatest value. Facts, not opinions, are needed. Laboratory evidence should be obtained when possible, but should be interpreted in the light of the clinical findings. When laboratory evidence is positive, it proves something; when negative, it proves very little. Witness a Wassermann reaction, for example. This is in accordance with the law of evidence, that positive evidence proves something, but negative evidence does not.

It may happen that when two or more diseases are present it is difficult to determine which is primary and which is secondary; which is the cause, and which is effect; witness a moderate vascular disturbance of the conjunctiva associated with a corneal ulcer; yet successful treatment requires a correct decision. Every diagnosis should be approached with an open mind. A preconceived opinion is a handicap. When we expect to find a certain disease, we are more likely to find it when it is not present than we are to overlook it if it is present. In making a diagnosis the position of the physician should be that of a judge, not a barrister.

In obscure cases a careful examination of the literature is of the greatest help. Much that is obscure will become plain. Consultations are, of course, always in order and should be encouraged, both for the good of the patient and for the protection of the doctor. Has it ever occurred to you how few suits for damages you have heard of where two or three doctors had previously consulted and agreed as to the course to be pursued? It is here that "group medicine," which really means team work, comes in. It is really surprising how few diseases will finally resist a correct diagnosis when the investigation is prosecuted in the proper way.

Among errors more frequently made may be mentioned mistaking follicular conjunctivitis for trachoma. In the later stages this differentiation is, of course, easy, as trachoma has certain marked and characteristic sequelae, while follicular conjunctivitis has not. But in the earlier stages this differentiation may be difficult or impossible. Among aids may be mentioned:

(1) The age of the patient, as follicular conjunctivitis is more common in young children, while trachoma occurs at any age.

(2) The presence of the disease more on the lower lid, as is usually true of folliculosis, while trachoma preponderates upon the upper lid.

(3) The presence of follicles alone, indicating folliculosis, while in trachoma we frequently have "mixed granulations," consisting of both papillary granulations and trachoma bodies.

(4) The presence in other members of the family of folliculosis or of true trachoma.

(5) The presence elsewhere of adenoid tissue in large quantity, as enlarged faucial and third tonsils.

It must be admitted, however, that there are cases where only prolonged observation can clear up the diagnosis.

In corneal ulcers our diagnosis often falls short, not that we fail to recognize the ulcer, for that can be done by simple inspection, by observing the corneal refiflexes, or more easily still by staining with fluorescin; but in that we fail to take in all the facts bearing upon the ulcer. Mucocele, I grant, could scarcely be overlooked, but in how many of our cases do we investigate the permeability of the naso-lacrimal passages, the septic condition of the nose and nasal sinuses, or the degree of anaesthesia of the cornea?

The relation between corneal ulcers and vascular disturbances of the conjunctiva are often overlooked. The ulcer being recognized, the conjunctival congeston is thought to be a result, when, as a matter of fact, the conjunctivitis may be the cause and the ulcer the effect. Of course careful observation would avoid such an error, but how many of us have seen it made? The treatment of such an ulcer is futile until the etiologic relation of the conjunctivitis is recognized and proper treatment for it instituted.

Another common error is mistaking acute iritis for acute conjunctivitis, and prescribing nitrate of silver or some other iritant with the hope of relieving the conjunctival congestion. By this error and prescription, not only is valuabe time lost in beginning proper treatment of the iritis, but fuel is added to the flame, and the iritis made worse. In such cases the pupil may be no smaller than its fellow, its circular outline may not be markedly impaired, even when studied under focal illumination, and its reaction to light and shade may not be noticeably lessened, especially if the patient is past middle life, at which age the mobility of the pupil is normally reduced. This error is easily made by those who fail to observe the action of the pupil after the installation of mydriatic. Indeed, there are cases where a differential diagnosis cannot be made without a mydriatic. In the young, any mydriatic can be used, but in the old, some mydriatic of short duration, such as homatropine, is preferred. In all cases of doubt a mydriatic should be instilled and the pupil observed.

Perhaps there is no error in diagnosis made by the general practitioner which is more common or more destructive of vision than occurs in cases of glaucoma. Acute inflammatory glaucoma is, by the family physician, regularly mistaken for iritis and treated with atropine. Thus fuel is added to the flame, and the only time the eye could be saved is lost.

Chronic, non-inflammatory glaucoma is as regularly mistaken for beginning senile cataract, and the patient is advised to wait for the ripening of the so-called cataract. The doctor supposes that the vision will fail as the cataract matures, and thus when the eye is totally blind, he brings the patient for cataract extraction, only for the ophthalmic surgeon to find an eye permanently blind from glaucoma simplex. The error is, not that something else is mistaken for glaucoma, but that glaucoma is mistaken for something else. Everyone here recognizes that errors such as these are commonly made, and are commonly fatal to vision. It is our duty to educate the general profession on these points and so to reduce the loss of vision brought about in this way.

Not only is glaucoma overlooked by the general practitioner, but it may be overlooked by the specialist, unless he carefully examines for it. During his visit to this country in 1913, Col. Robert Henry Elliot announced a syndrome which will greatly aid in the diagnosis of incipient glaucoma. This syndrome is composed of three symptoms, as follows: (1) reduction of central vision; (2) contraction of the field of vision, as taken by the perimeter; (3) increase of intra-ocular tension, as shown by the tonometer, and not by the fingers. As glaucoma is often intermittent in its incipiency, the above symptoms may not be found if the examination is made in the interval between the attacks. For this reason it is my practice to request patients who are suspected of having glaucoma to come to me any time their eyes are feeling uncomfortable, so they may be examined during the attack. At this time the Elliot syndrome can be more definitely made out. It is a good rule, in examining the eyes of patients past middle life, to keep in mind the possibility of glaucoma and to examine the central vision, the field and the tension in all doubtful cases, or when another diagnosis is not readily apparent. Some years ago, during a visit to Moorfields, I was struck with the relatively greater number of operations for glaucoma there than seemed to be done in this country. This caused me to wonder if we had been overlooking it here, and I believe that to some extent we have.

Of course what is said here about the diagnosis of glaucoma refers to the disease in its incipiency, for it is difficult to see how any one could overlook it in its late stages. The early diagnosis of glaucoma should bear fruit in improving the prognosis, for in my experience, the good results of treatment have been in direct proportion to the earliness with which it was instituted. I have often thought of the progress of glaucoma as divided into two stages; the first stage, which is before optic atrophy begins; and the second stage, which is the stage of optic atrophy. In the first, or pre-atrophic stage, it is quite conceivable that treatment may restore normal vision; but in the second, or atrophic stage, normal vision can no longer be hoped for. The earlier in glaucoma, the more difficult the diagnosis, but the better the prognosis if treatment is begun; but the later in the disease, the easier the diagnosis, but the worse the prognosis, even if treatment is instituted. When glaucoma occurs first in one eye and later in the other, the second eye to be attacked offers a better prognosis than the first; because, having finally been diagnosed in the first eye, its beginning in the second eye is more promptly recognized, and hence correct treatment is begun at an earlier stage of the disease in the second eye than the first.

My purpose in bringing this subject to your attention is that we may reflect upon the mistakes we have seen—mistakes made perhaps by others, perhaps by ourselves—to the end that we may profit by them and avoid them in the future. An accurate diagnosis is that which raises medicine from empyricism to rationalism. It is, in fact, the very essence of rationalism. It frees the mind from a mass of vague fears: gives precision to prognosis and confidence to effort.

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## DISCUSSION.

Dr. G. C. Savage, Nashville:

Mr. Chairman, there are some conditions in which it is difficult to make a diagnosis, even by an oculist. And I wish in my discussion to refer to some of these rather than to some of those that have been so clearly pointed out by Dr. Wood.

The first one that I want to call attention to is retro-bulbar neuritis. It is a very easy thing to make an error in diagnosis in any case of that kind. The patient will come to you blind in one eye, seeing well with the other. You look into the eye, and you see nothing wrong; you find the blood vessels of their normal caliber, and there is no redness nor swelling of the nerve-head, yet the patient is blind; the blindness has come on recently, and always suddenly, but with some graduation. I think that my friend Wood, the author of the paper, will recall a case of his that I saw in connection with him. He had made an unfavorable prognosis in the case, and the father of the lady asked him to let me see her. Well, I ventured on a diagnosis, and I believed that I was correct, and the subsequent treatment proved the correctness of my position. The patient was blind in the one eye, and it was impossible from anything that one could see to make a diagnosis in her case, but I ventured to say that I hoped that Dr. Wood's prognosis might not be perfectly correct, for the sake of his daughter. After making an examination and suggesting that my judgment was that she had a retro-bulbar neuritis, I telephoned to Dr. Wood, and advised him to put her on treatment looking toward the cure of the condition. She had a splendid recovery. I have not seen other cases of retro-bulbar neuritis, as proved by the fact of recovery. You see an eye that is recently blind, and you can not see anything inside of the eye to account for that blindness, and no affection of the other eye at all, then you are safe in leaning towards retro-bulbar neuritis, which of course is curable.

Another condition which is sometimes troublesome: I will illustrate that with a case. A lady came to see me a few years ago. She was blind as far as direct vision was concerned, but could see to walk about. I looked into her eyes; I saw nothing, and she had not been seeing anything either—and those are the two things that would lead us to say what is the matter with the patient. I leaned back in my chair, and waited for her to ask the question, and yet I knew she would ask the question: "Doctor, what is the matter with me?" I said to her: "Mrs. So-and-so," if you were a man I would tell you what I think is the matter with you, but you are a lady, and I am not going to tell you what I think is the matter with you." "Well," she said, "Doctor, please consider me as a man for the moment, and tell me what is the matter with me." Tobacco amblyopia. She confessed that she was a great snuff-dipper, and my diagnosis was proved to be correct, for the reason that, when she had quit her snuff and had taken eliminants for a few days, her vision came back to her. I have had two cases of tobacco amblyopia in women, and both confessed that it was snuff. So when you have a lady come to you, and she has very bad vision in two eyes, without fundus changes, remember to suspect that it is tobacco amblyopia.

Early diagnosis is essential in the beginning of choroiditis in people who are getting old. There is a symptom that I suppose may not be present in every case of beginning choroiditis, that if you can find that symptom it should be constantly a basis for treatment, which may prevent further progress in the case, and in fact cure the case, as I have seen some cases cured. That symptom is, a patient will be looking out towards the sky and there is a flash like a jack-o-lantern, it may have one shape or another, but it is not movable except as the eye moves, but it vanishes to return immediately. In an elderly person, it is likely to appear in the other eye shortly after it appears in the first, so he can close one eye and see it, and then close the other eye to see it. That is the earliest symptom of central choroiditis that I know anything about. You can look into the eye and see no change at all thus early. These cases, found that early, can be cured, and they are cases of central choroiditis. Of course in looking at print, the patient does not see the white glistening as against the sky, but he sees a shadow that notches the letters or obsecures them entirely. In these cases the iodide bichloride will effect a cure. I have had a good many of such cases.

So much for that.

Follicular conjunctivitis and trachoma are two conditions that are very much talked of at this time, and all that I have to say about them is this: If you are in doubt as to whether you have trachoma or follicular conjunctivitis, treat the trachoma, for the treatment of the trachoma will cure the follicular conjunctivitis; whereas, the milder treatment for the follicular conjunctivitis might fail to cure the trachoma.

I am nearly through, too.

Iritis and conjunctivitis. If you remember nothing else that Dr. Wood has said than his statement about applying the touchstone of diagnosis, you can clear up these cases. That touchstone is a true one. When there is any doubt as to whether the patient has conjunctivitis or beginning iritis, it will clear up the diagnosis speedily, even if the iritis is early and the adhesions have not formed when you instill the mydriatic.

Dr. James P. Crawford, Nashville:

Mr. Chairman, and gentlemen: There is one question brought up here that is a live question today, and that is the question of trachoma. Now we have got a fight on our hands, and we have got a fight with the Health Board, and I am sorry to hear Dr. Savage get up here and say that if we are in doubt treat them as trachoma and go ahead. That is all right, so far as that goes, but he has not gone far enough. I think we ought to be honest enough with ourselves, and honest enough with the public, to say, if these cases are cured within two or three or four weeks, or six weeks, that "I am mistaken, it was not a case of trachoma," and to come clean. Because, Mr. Chairman, I do not believe there is a single man that can cure a case of genuine trachoma in any three or four or six weeks. I think it is an impossibility. And I still further believe that there is not a single individual that can make a diagnosis of acute trachoma at first. In any case it is all right to go ahead and treat those cases with the mild treatment, in other words, with the mental reservation that "I am going to come clean, when I feel that I have not had a case of trachoma."

I just saw a case this morning of a boy fourteen years of age with evidently a luetic cornea. He had been to a man, White, down here, who "fits right," and had a rather expensive pair of glasses, $11.50. The boy is evidently in bad shape—he can not see hardly to get around, and yet these these glasses were sold to him and he has got a leuetic cornea. But I want to lay stress on the question, I think we are bringing ourselves into discredit with the general practitioner with these bickerings and differences as to the diagnosis of glaucoma. Now I do not believe that we ought to make any definite diagnosis and ought not to have these differences coming up, because it seems to me that any case of trachoma that you are going to have you are not going to cure it within three or four weeks or five or six weeks, and if you do cure those cases, you are going to have the earmarks of trachoma left there in some scar tissues.

Dr. S. T. Hubbard:

Mr. Chairman: In the matter of the differentiation between conjunctivitis, and iritis, I wondered if there were not, perhaps, a third disease which we must consider—glaucoma. Glaucoma may cause redness of the conjunctiva; it may not give us cloudiness of the cornea, or the classical widely dilated pupil. Ought we not to use, in differential diagnosis, eserin instead of homatropin? Eserin will make an iritis pain worse but the glaucoma pain less. I have wondered if, perhaps, eserin is not of as great, or greater value than atropine in the differential diagnosis of those cases in which, of course, glaucoma might be present. There was one other point, in trachoma, the symptoms of which I have been watching. I suppose it has been known a long time. There is lots written on trachoma which I just haven't seen. That point is: in the follicular trachoma, the presence of vesicles on the upper nasal quadrant of the globe. I have never seen them there in follicular conjunctivitis and have concluded them of some diagnostic importance in the two conditions. Dr. Ellett and Dr. Wood can both probably tell me more about that.

Dr. Herschel Ezell, Nashville, Tenn.

Mr. Chairman and gentlemen: I think that Dr. Wood reveals the error or the secret of our failure in making a correct diagnosis when he speaks of the small amount of time devoted to the examination. I believe that a dull man, so to speak, can make a more correct diagnosis than a very brilliant man if he will devote the necessary time to the examination. I was very much impressed with the method, or the difference in time required or devoted to an examination by the German specialists when I was abroad several years ago, compared to the amount of time that we American doctors devote to the examination of our patients. And I do not believe that the Germans excel us; I believe that we excel; but I do believe that the secret of their success is the amount of time that they devote to their examinations, and I just wanted to emphasize this one point.

Dr. Lewis M. Scott, Jellico:

I have listened to the reading of this paper with a great deal of interest. This is a very practical subject, and it has been very aptly presented by Dr. Wood. There remains very little to be said, since he has so thoroughly covered the ground; yet I would like to add a word or two, by way of emphasis, in connection with that part of his paper which deals with the improper use of atropine in the eye. This I wish to do by a brief report of a case. A coal miner, aged 50, came to me recently for relief from a painful and highly inflamed eye. He gave the following history: About four weeks prior to the date of his first visit to my office he had suffered from an attack of small-pox, and that one week after the beginning of the attack, one eye became inflamed. The physician in charge put atropine solution in the eye, which he had him continue until he left his home to seek relief elsewhere; the eye continuing to grow worse all the time. At the time I first saw him he was suffering from an attack of acute glaucoma, which had no doubt been ushered in by the continued use of the atropine. The pupil was widely dilated, the cornea steamy in appearance, hypertension, accompanied with intense pain in the eye ball, also severe pain in the temporal and supra-orbital regions. His vision was reduced to light perception only. He had not been able to sleep for several nights on account of the severe pain. I was able to quiet the eye sufficiently to relieve him of pain and improve his vision to the extent of figures at 12 inches. Do not know the final outcome of the case, as he failed to report to me after two weeks treatment. If proper treatment had been used in this case at the beginning of the attack no doubt his vision could have been saved.

Dr. John Green, Jr., St. Louis, Mo.

Mr. Chairman and gentlemen: It seems to me that occasionally the oculist himself is at fault in the interpretation of symptoms which are ordinarily ascribed to eye strain, or muscular imbalance.

Some years ago Dr. DeSchweinitz wrote a most instructive paper entitled "Mimicries of Eye Strain," in which he pointed out a number of things that might simulate the symptoms which we ordinarily regard as indicative of uncorrected ametropia. Last October at the Kansas City meeting of the Academy of Ophthalmology and Oto-laryogology I presented a paper in which I emphasized the importance of a very careful inspection of the anterior segment of the globe in all patients coming with complaints ordinarily ascribed solely to ametropia. It is now my practice to inspect, in order, and with a Binocular Loue on my forehead, the lower and upper fornices, the bulbar conjunctiva the edge of the lids, the cilia, the cornea,—in fact, every portion of the anterior segment. And it is surprising how often one will discover minor abnormalities which may contribute to the symptoms. For instance, a careful examination of the upper fornix, may disclose a few disseminated concretions or deposits; these concretions or deposits are composed of hyaline material from foci of irritation and may perpetuate a low grade conjunctivitis; we will fail to relieve the patient's discomfort until we go after those concretions and remove them with knife and curette. There are also hidden or occult chalazia which are not palpable. These can be brought to light by instilling adrenalin. The site of the chalazion will show as a slightly dark oval. Small senile warts may overhang the lid and irritate the cornea. Aberrant lashes, not due to cicitricial changes in the lids may irritate the cornea. These are some of the minor disorders of the lids, cornea and conjunctiva which should be sought for and if found should be eliminated; and in many a case in which one fails to abolish the symptoms, by means of the most careful refraction, or most exact correction of an associated muscular trouble one can finally bring comfort to the patient by attention to these minor disorders.

Dr. Wood, (Closing Discussion).

Mr. Chairman and gentlemen: I thank you; but I have not anything to add except to speak to Dr. Vaughan's question. The degree of contagion of trachoma, as I understand it, is determined by the amount and the purulency of the discharge. Children who have active trachoma should not be admitted to attend public schools. In fact, we have in this city a regulation to that effect.

## PYOTHORAX.*

By Casa Collier. M. D., Memphis.

During the past three years the treatment of pyothorax has undergone various changes and the medical profession has had the advantage of abundant material upon which to found well taken deductions. This almost inexhaustible material coming under conditions which existed in the Military Camps, afforded ample opportunity for study, both clinically and in the post-mortem room, and here a great deal was learned concerning certain mechanical laws, which existed in the thorax before and during disease that must be taken into consideration in the surgical treatment of any intrathoracic condition. The most apparent misconception that has been dissipated by the light of these investigations was that the mediastinum constituted a more or less rigid wall between the two pleural cavities and that alteration of pressure in one produced little or no alteration in the other. This misconception has become seated in the minds of surgeons, and I believe that the proof of its fallacy opens the portals to important advancement in chest surgery.

Apparently a primary pleuritis can occur in only one of two ways. The first, which to my mind occurs very seldom, consists of absorption of bacteria by the adenoid tissue of the respiratory tract with a consequent infection of the pleura. This condition was considered by men of no less ability than Grawitz and Heller in the early period of the study of empyema to be the important cause.

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*Read at Annual Meeting of Tennessee State Medical Association at Nashville. April. 1921.

The second mechanism concerns itself with the phenomena associated with a bacteremia. Organisms having gained their way into the blood stream through any one of the many possible portals, find a resting place in the pleura and thereby cause a primary infection.

This group forms hardly more than 8 per cent of the total empyemata. The remaining 92 per cent develop secondarily to infections elsewhere in the body.

The primary causes of empyema may be roughly grouped under three heads.

(1) Those occurring with or following pneumonia.

(2) Those that are caused by the rupturing into the pleura of neighboring abscesses, and here pulmonary abscess is by far the most frequent, or the introduction of infectious material through trauma.

(3) The metastatic type, following a focus of infection at a distant point.

By far the most frequent case of empyema is pneumonia. The empyema may develop with the pneumonia (and this is very common in the young) or it may develop during the period of resolution, or apparently complete resolution may take place with a period of convalescence existing before its development. It is a very common occurrence to see an empyema develop during the later stages of pneumonia that is diagnosed and treated for varying lengths of time as an unresolved pneumonia, and this is such a common error that I believe all cases of suspected non-resolution should be aspirated in order to ascertain definitely the formation of pus. According to the U. S. Army Empyema Commission, 69 per cent of the empyemata are due to pneumonia.

A very small group, which constitutes approximately two per cent, are caused by the extension or rupture of suppurative processes in the immediate vicinity into the pleural cavity, and in this group two types can be demonstrated. The first is constituted by the formation of an acute pulmonary abscess in the neighborhood of the visceral pleura, which ruptures through it into the cavity. This type is characterized clinically by a sudden and overwhelming toxemia associated with great pain. It usually involves the entire pleural cavity, frequenty is complicated by a pneumothorax and usually goes on to a fatal termination. The second group under this head is caused by the rupture of a chronic pulmonary abscess. These lesions frequently develop following the introducton of foreign bodies into the lung through the trachea or formation of an abscess following tonsillectomy. The adhesions in the pleura usually limit the empyema to a comparatively small area and frequently a bronchial fistula is formed. They are manifested clinically by prolonged illness and a distressing cough, which produces periodically a profuse expectoration of putrid material. I have just recently had one of these cases, which was demonstrated very beautifully by the x-ray and on the operating table.

The metastatic type is rather common and constituted approximately four per cent of the cases. It is very probable that the mechanism of their production is concerned with the lodgment of infected emboli in the pleura, which are derived from the original source of infection. This type is not to be confused with the empyemata arising from a bacteremia, as the mechanism of production is entirely different. The one is caused by the localization of bacteria which are floating free in the blood stream, which is not preceeded by any gross pathology elsewhere in the body; hence it is a primary pleuritis. The other is an embolism, the emboli being derived from a focus of suppuration; hence it is secondary. Metastic empyema is most frequently secondary to suppurative conditions in the lower abdomen, such as acute appendicitis, adnexal disease of puereral sepsis, less frequently following infected hemorrhoids and infections in the genito-urinary tract.

In the diagnosis of pyothorax, in addition to physical findings, we rely upon two procedures. The first is exploratory aspiration. I never operate upon an empyema without verifying the presence of the pus by aspiration and ascertaining if possible, the organsm causing it. The information to be gained by aspiration is so great and the danger, when properly done, is so small, that I consider the former far offsets the latter. The Roentgen ray is our second ally and with it we are able to gain almost as much and as valuable information as we can by aspiration. I have frequently combined the two, aspiratng under the fluoroscope.

After we have established definitely the outines of our pus sac and have ascertained beyond doubt that there is no active pneumoic process in the lung, we decide upon the method and the point of attack and it is my purpose to bring before you only one method of surgical intervention. Not that I think this method infallible, or that it suits all cases, but my reason for discussing only this one is based upon the belief that it is nearer perfection than any other technique with which I am acquainted.

As early as 1890 Beular and Perthes recognized the necessity of operating without complicating the pyothorax with a pneumothorax, and the technique which Diederich brought forth in 1918 is an elaboration of that used by Beular in 1890. Various appliances for the prevention of this complication have been used. Various negative pressure pumps and valve action outfits have been advocated and I believe that I have used most of them. The Diederich technique is by far the most simple and easiest of application and carries with it less operative shock. There are some points in his technique that I do not carry out. I have modified it to suit my own ideas and needs, as I think every surgeon should do.

The technique of operation consists of the introduction into the cavity of a No. 14 French catheter, with several small perforations near the end, through a specially constructed trocar. After the location of the cavity is definitely determined upon by aspiration and x-ray pictures, a point is selected where the tube can be introduced into its most dependent portion. If possble, the site is selected in the interior or mid-axillary line so as to avoid the **latissimus dorsi** muscle, as the introduction of the tube through the heavy muscles add to the patient's discomfort. The skin and subcutaneous tissues are anaesthetized with a 1 per cent novocain solution about 1¼ inches below the interspace through which it is our intention to introduce the tube. Then the intercostal muscles and pleura are anaesthetized and a small puncture is made into the skin wth a scalpel. The trocar is then introduced into this puncture, passed through the subcutaneous fat and turned up between it and the muscles and pushed upward until our previously anesthetized intercostal space is reached; it is then rotated, the point turned into the intercostal space and pushed into the cavity. The trocar is then withdrawn sufficiently to allow the catheter to be inserted through the canula; it is then once pushed well in and the canula is withdrawn, taking care to allow the catheter to remain in. The pus is then allowed to flow out and is aspirated a little at a time, care beng taken to allow no air to enter. As the catheter is lying in a long channel with two acute bends in it, it will not leak. The skin is well dried and a piece of rubber dam with a small perforation in its center is slipped over the end of the catheter. This is pushed down against the skin and cemented there with ordinary rubber cement.

In the cases where there is a large accumulation of pus and where the lung has been compressed for a long period of time, the pus is withdrawn to the point where the patient begins to experience slight respiratory difficulty. The tube is then immediately closed and the patient returned to bed. In the event that the respiratory difficulty continues some of the fluid is replaced by Dakin's solution. Several hours later more of the pus is withdrawn and this is continued at intervals until the cavity is emptied. Negative pressure is maintained at all times by connecting the tube with a large bottle, from which the air is pumped by an ordinary Potain aspirator pump. A mercury manometer is attached to the bottle in order to gauge the pressure and in order that the nurse may be able to tell at a glance that a negative pressure ismaintained.

I have endeavored to ascertain the amount of pressure necessary to expand the lung, but have found that it varied so widely in different cases, due to the degree of thickening of the pleura, that it is impossible to state any definite amount needed. The amount must be determined in each individual case.

The post-operative treatment consists of the maintenance of the negative pressure and the periodic flushing of the cavity with Dakin's solution. My rule has been to fill the cavity with Dakin's solution about four times daily. Ascertain the capacity of the cavity, wash it out until the fluid returns clear and then leave in about one-fifth of the necessary amount to fill it. Connect the tube with the suction bottle and allow it to stay closed for 45 minutes. At the expiration of this time the pinch-cock on the tube is released, the negative pressure at once empties the cavity and expands the lung.

It goes without saying that rigid asepsis in the technique is as necessary as in any abdominal work. It cannot be left to the nurse or to the interne, unless he or she has had surgical training and is duly impressed with this necessity.

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## DISCUSSION.

Dr. L. E. Burch, Nashville: This is a subject in which I am very much interested. I do not think that the profession, as a whole, realize that the mortality of empyema is about twenty-five per cent. If a careful analysis is made of the statistics of the Army camps there is much to be learned in regard to pathology and treatment.

There are a number of statements made by the essayist that I desire to take issue with in a friendly way. There are two varieties of empyema. The first, or the common variety, is seen following pneumonia. There is a very little to be said about the common variety, as the diagnosis, pathology and treatment are well known. The other variety is due to the streptoccus hemolyticus, and it was this variety that played havoc in the Army camps until the treatment was placed on a rational basis. This form is usually seen following influenza, measles and the exanthematous diseases.

The infection of the pleura takes place in the same way as the infection of the peritoneum. It is a secondary process and is brought about by the rupture of a small abscess from the lung into the pleura. This was demonstrated by post mortem experiments and on the operating table time and time again by Moscovitz, and his views on the subject are now accepted by the majority of pathologists.

The diagnosis in many cases is easy, in others it is exceedingly difficult. Of most importance are the history and physical signs. The additional aids, such as the x-ray, the laboratory and the aspirating needle, should all be used.

The treatment of the pneumococcus variety is operation as soon as pus is formed. The dangerous cases are those that are due to the streptococcus hemolyticus. It was in this variety that the mortality was so high in the camps until a better understanding of the condition was brought about. A serious effusion is first thrown out in the stroptococcus hemolyticus variety, and under no circumstances should operation be carried out during this stage, for the reason that few adhesions are present, the cavity is not walled off and collapse of the lung is likely to take place, if the pleural cavity is opened up.

The treatment during the stage of serous effusion is aspiration, and this should be repeated until creamy pus is formed, then operation should be carried out. The form of operation should be based on common sense and one that the ordinary practitioner or surgeon can carry out. Experience has shown that the best treatment of these cases after creamy pus has formed, and never before that, is to remove with a local anaesthetic a portion of a rib and place in one or two drainage tubes. The Dakin-Carrel treatment is ideal, but I am frank to say that very few have had sufficient training to carry out this form of treatment. I see before me some of the most distinguished surgeons in the State, but I doubt if there are more than one or two who are able to carry out the Dakin-Carrel treatment efficiently. The great majority of cases will recover without the Dakin-Carrel treatment. If they do not, then an expert should be called in to assist in carrying out that form of treatment. Another point of equal importance in the treatment is the handling of patients ofter the operation. They should be placed out of doors and forced feeding should be instituted, giving them such articles as eggs, toast, vegetables, meats and fruit juices.

In conclusion I desire to emphasize the following points:

(1) Never operate in empyema unless creamy pus is present.

(2) After it is formed it should be evacuated by removing a portion of a rib using local anaesthetic and the placing of drainage tubes.

(3) The Dakin-Carrel treatment should be carried out in all cases, if one has had the proper training.

(4) Fresh air and forced feeding are absolutely essential.

Experience has shown that the mortality can be reduced from twenty-five to from six to eight per cent by following the suggestions mentioned.

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Dr. J. J. Waller, Oliver Springs: In an experience extending over 32 years I do not always find it easy to know when there is pus in the pleural cavity. The physical signs are wonderfully misleading, for I suppose we have all had these cases to contend with and have introduced the aspirator and got no pus. However, that is no evidence that pus is not present. It may be limited and confined in pockets. It may be within a fissure of the lung. We may miss a pool of pus, or the pus may be so thick and of so long standing that it will not run out through the ordinary needle, and consequently we may be convinced that pus is not there when it really is there.

As to the percussion signs, we have dullness in the pneumonic process, and we will have flatness if the pleural cavity is filled with any kind of fluid; but there is an intermediate position, and when the amount of pus is small we can not be governed by the percussion signs, neither can we be governed by auscultation. Those of us who have tried it and have become familiar with these signs know that they can not be relied on. The needle is doubtful in many instances.

There is one sign I want to call your attention to that outweighs every other sign in the diagnosis of pus or any effusion in the pleural cavity, and that is vocal fremitus. You put your hand on the sound side or one with a thickened pleura and you will get vocal fremitus, but if you put it over fluids you will not get it. This is a more reliable sign than either auscultation or percussion. I will not say that it is pathognomonic, but it is almost so.

As to the treatment, the sooner we can detect pus in the pleural cavity before the lung is compressed and ruined and establish drainage, the better. There can be no question but what local anesthesia is sufficient to enable one to remove a sufficiently large section of the rib. I have operated on a number of these cases and I find the best drain to use is a good-sized tube. Do not put any fluid in the pleural cavity if you suspect there is a fistula in the lung. You may drown your patient. The cavity does not need washing out—simply drain.

You can take a piece of rubber dam and wrap it about the end of a rubber tube in the manner I show you and use it. During inspiration collapse takes place in the rubber dam, and it keeps the patient from sucking air into the pleural cavity. You can obliterate the cavity and keep air from going in there as much as possible, and every time expiration takes place it forces pus out. This valvular action on the outside of the rubber dam is better than any device I have been able to use. The tube should be four or five inches long, perforated about the inner end. The tube of dam should be about the same length, wrapped and lapping onto the rubber tube about two inches on its outer end. They should be stitched and tied together. The overlapping portions should lie or rest in the flesh wound where the rib was resected; should be transfixed with a safety pin which rests transversely across the wound under the dressings. The rubber dam tubing should rest out in the dressings to carry off the pus on inspiration, and close down in valve-like action on expiration.

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Dr. David R. Pickens, Nashville: My experience has been practically limited to Army camps, and I rise to endorse what Dr. Burch has said. About 81 per cent of the men with empyema in some of the camps died. Now, some of you gentlemen will be surprised at that remark but that is true. Anywhere from 40 to 81 per cent in the winter of 1918 of these cases of empyema died. We were not dealing with empyema-pneumonia, except in the variety of the cases that followed the exanthematous diseases, measles, and the flu. That year in the camp in which I was located we had 140 cases of empyema, and during that year 40 odd per cent died. So in connection with the report of Dr. Muscovitz to which Dr. Burch has alluded, and others of the empyema commission, they worked out a treatment for these cases. In the next year, 1919, only 6 per cent of these cases out of 100 died in the same camp, while 40 odd per cent died in the year before. What was that due to? We have got to differentiate empyema caused by the pneumococcus from that caused by the streptococcus. In the majority of cases we got a mixed infection. We got a pure streptococcus, but more often a mixed streptococcus infection with the pneumococcus and staphylococcus, all three combined.

Extensive bacteriological work was done in the Army on these cases. We had as good bacteriologists as I have ever come in contact with in this camp. They studied these cases carefully, and in connection with the medical and surgical services it was decided to aspirate, whereas the years before they operated early and lost 40 per cent. Following this high mortality they decided to aspirate and to treat these patients medically by diet and fresh air, and they only lost 6 per cent. That is an example of what can be accomplished in these cases by aspiration.

What has been said with reference to the evacuation of the pus and using bacterines is not true as applied to empyema. When we have empyema following the measles or flu, or any of the exanthematous diseases, it is more like a streptococcus empyema. It must be treated differently from a pneumococcus infection. These cases were treated by aspiration. Some of these men were very thin and emaciated; they almost died of pneumonia, and were not in condition to withstand operation and very little manipulation of any character. Some of them could not be aspirated so as to remove all of the fluid; a part of it was aspirated, and those patients that were aspirated were put out of doors, and often as many as ten aspirations were made. It was surprising to see how they came around and how much benefit they got from this treatment in ten days to two weeks. When you get a creamy pus condition the patient must be treated, and after this treatment these patients gain in weight, they gain in resistance, and are able to eat and come out of the stage in pneumonia in which they were left before operated on.

Again, these cases should never receive a general anaesthetic, and one can do an almost painless operation under novocain anesthesia or apothesin, and a general anaesthetic is not indicated. So much for aspiration.

I had the pleasure of taking the Carrel-Dakin course at the Rockefeller Institute and tried it out in 100 cases after having taken the course, and some of them before. There is no comparison between the treatments if properly used. You can not compare the results because these patients are more comfortable, they get well quicker, and it is surprising to note the results you get from this method of treatment. Unless the Carrel-Dakin treatment is carried out efficiently it is not worth anything. The Dakin solution injected into a cavity every two hours will come in contact with the pus and it has the power of killing the organisms, and of reducing their number in a very short time; also the cavity can be sterilized.

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Dr. C. N. Cowden, Nashville: I venture to say, that there are surgeons in this hall who never saw a death from empyema until after these surgeons went through the war, and just as soon as they went to war they reported from 40 to 80 per cent of these patients with empyema dying. I do not believe one of them was dying from empyema per se; they were dying from the influenza pneumonia which is not pneumonia at all. It is a gangrenous or degenerative condition of the lung, and all of us who went through an epidemic know that no matter how small the spot was in the lung, where you got a double infection the patient would die. The men in the Army had to do something. At first, they were operating on all of them, but the men were dying from a degenerative condition going on in the lung. One eminent surgeon made the statement that he was losing every patient with empyema that he operated on. He said he did not know what was the matter with them, but he had been operating on them for empyema. Those that he did not operate on got well. Three days thereafter I lost three patients on whom I operated for empyema and then quit operating. If you operate on these patients when their resistance is very much lowered they will likely die of pneumonia, but if you wait until a more favorable stage when you can resect a rib and give vent to the pus, and then leave the patient alone, he will get well.

There is no use for the Carrel-Dakin solution in these empyemic cavities. It adds a great deal to the apparatus. I have tried it oftentimes and others have tried it. Of course, I may not have been expert in its use, but if we wait until the stage when nature has walled off the abscess cavity, these patients will get well.

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Dr. Casa Collier, Memphis, (closing): Dr. Burch was very kind in saying that his disagreement was going to be friendly. It was so friendly that I hardly see where the disagreement comes in. He said exactly what I said in my paper and agreed with me, with the exception that his technic in dealing with these cases is a little different from mine. I think he voiced the sentiment I tried to leave with the Association, that collapse of the lung is a serious complication if done at an inopportune moment, or if done at any time, but the most inopportune moment is before the pus is thick. Pus gets thick after it is walled off; before it is walled off it is thin. Collapse of the lung can be prevented by the technic I have outlined, which is nothing at all but repeated aspiration. You introduce a small tube which is left in and aspiration can be resorted to at any moment without further pain or the further introduction of the needle into the patient's chest. Added to repeated aspiration is the negative pressure which prevents collapse of the lung.

Dakin's irrigation probably plays two roles, the first of cleansing the cavity, washing it out with some solution that we can absolutely depend upon as being sterile, and added to that the antiseptic properties that it has. I do not think there is anything we can use that has the solvent power the Dakin solution has, and it is of great benefit in dissolving and removing any coagula that may be in the cavity.

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# EDITORIALS

## DANGER!

A county health officer reported to the State Board of Health on September 15: "I wish to report four cases of diphtheria, two of which were reported to me after death." On the same day another county health officer reported: "I have just learned that there are a number of cases of diphtheria in this county. None of these cases have been reported to me by attending physicians. Please send containers at once." Another county health officer sends in his monthly report with this statement: "All cases covered by this report are in my own practice. Other doctors do not report their communicable diseases."

The State Board of Health issued a warning early in August to the effect that diphtheria was unduly prevalent in the State at that time and that unless all possible precautions were used by physicians and health officers there would be great danger of a most serious situation developing. Since that time other warnings have gone out and the urgent necessity for early diagnosis, isolation and quarantine has been emphasized. The law requiring physicians to report communicable diseases and requiring health officers to carry out the indicated preventive measures is very plain. The duty of doctors and health officers is plain enough, even if there were no law.

Diphtheria is present in every county in Tennessee. In some communities schools have been closed because of its great prevalence. The reports of the State Board of Health Laboratory show that there are many carriers among school children from whose throats swabs have been taken by field workers of the State Board of Health.

There is a very real danger of an old-fashioned diphtheria epidemic in this State unless practicing physicians and health officers will measure up to their full duty in the circumstances now prevailing. What are you going to do about it?

## CAUGHT IN THE ACT.

If current reports are true, there is to be found here and there among the busiest of our doctors one who has developed into a veritable serum shooter. Everything, from a bunion to brain involvment, is treated by such an one with a "serum." The serum shooter is a smooth artist, as a rule, but occasionally he lets his foot slip as will be here shown.

Two women, of social prominence, after "going the rounds," that is, after having been patients of many different physicians, finally came into the hands of the serum shooter for treatment, having heard his fame extolled by others like themselves. They were ideal cases for Dr. Shooter, being of the kind who have nothing to do except to go to teas and parties and to doctors.

Their supposed ailments, however, were of entirely different natures. One had this, but the other had that.

Dr. S. Shooter made a great show of scientific technique in his first examinatons in the two cases, had all the tests made—from Hb determination to x-ray of the sinuses and cavities and bones and teeth and lungs and things—corrugated his manly brow to the proper degree of impressive corrugation, and learnedly delivered his diagnosis in each case. He then outlined his plan of treatment, going at length into a discussion of the value of "serum treatment" and reciting a long list of miraculous cures to his credit. It was necessary, however, as he impressed upon each of the two patients herein referred to, that an "individual serum" should be used. Everything fine. The two patients were willing and agreed to present themselves for receiving their injections of "individual serum" on Mondays, Wednesdays and Fridays until the indicated "course" for each should be completed.

The two ladies went to Dr. Shooter's office for several Mondays, Wednesdays, and Fridays and had a fine time discussing their ailments and things and in telling about their marvelous improvement, and in talking nice about Dr. Shooter—the dear thing! Of course they improved. Their kind always does, as Dr. Shooter well knows.

But one Monday or Wednesday or Friday our friend Doc S. Shooter made a serious error in technique. He left a crack in the door opening. Our two lady friends saw another lady go into Dr. S.'s private office and through the crack they saw him take a bottle of serum off the shelf and shoot the lady. Then one of them went in, and while her waiting friend and fellow patient watched proceedings through the door crack, saw our dear Doc. pull down that same identical bottle of serum and give her her shot of "individual" stuff. Saying nothing, but thinking hot thoughts, our first friend went out and resumed her former vantage point in the waiting room, from which she, in turn, watched the scientific S. S. administer to her friend HER shot of "individual" serum from the same old bottle! And then! Well, the things that were said between the two when they left are not to be recorded here, but if Doc's ears didn't burn, they must be as leathery as his conscience, for they said enough, and they said it about him.

Dr. Serum Shooter is still shooting the serum and the bull. His old bottle has been replenished several times, his supply of bull is unfailing and inexhaustible. But our two female friends are in the hands of other doctors for treatment. Their improvement is exceedingly slow because they exhaust thir strength in talking about Dr. Shooter and his nefarious methods.

Moral: If you are a s. s., don't have a crack in the door.

Conclusion: Dr. Serum Shooter is a sad sinner.

## DISCONTINUED.

For several months the daily papers of one of our cities carried advertisements of from one-half to a full page extolling the virtues of a certain "method" in use by one who described himself as a philanthropist of purest ray serene, who with his marvelous "auto-serum, claimed to cure everything from warts to G. P. I. These advertisements were assorted. Some used a full page to abuse the medical profession and to extol the advertiser. Some used a full page to explain in detail the "method" and extol the advertiser. Some used a full page to present "testimonials" and to extol the advertiser.

It was one of the "testimonial" carrying ads that seems to have brought about a discontinuance of the advertising program of the great philanthropist in the two Nashville dailies.

Among "testimonials" from "Christian Advocates," miraculously healed patients, etc., was one from a certain Mr. S. In this "testimonial" Mr. S. stated that he had given up hope and had also given up work, but that after a shot or two of "auto serum" he felt himself regenerated and reorganized to the extent that he meant to go back to work that very day on which he wrote. Somehow or somehow else the name of Mr. S. stuck in our mind until a professional friend informed us that the aforesaid Mr. S. had been dead for more than a month. Then we recalled that the death certificate for Mr. S. had come under our eyes and proceeded to look it up. Sure enough, Mr. S. had died about one month before his "testimonial" appeared in the advertisement, his death having been due to cancer. We wrote to the two papers setting out the facts. The ads ceased to appear.

The law, as we read it, gives the State Board of Medical Examiners the right to revoke license in the case of a man who has been licensed to practice medicine in Tennessee and who is guilty of dishonorable conduct. The law specifically defines the kind of advertising that gives ground for revocation of license.

The ads have been discontinued. The advertiser's license should be.

## AN ACTUAL OCCURRENCE.

A long distance message from a county health officer to the Secretary of the State Board of Health reporting an outbreak of diphtheria in a splendid community in Middle Tennessee.

The state health officer proceeds at once to the county seat and taking up the county health officer drives to the aforesaid community.

In one house a child is found with a typical diphtheria, with laryngeal and nasal involvement.

Sixteen—count 'em—sixteen persons in the room with the dying child. Three of the sixteen, children going to school each day from the infected home.

Attending physicians—two of 'em—have made no report of case. No quarantine.

Attending physicians advised against the use of antitoxin, claiming that it is dangerous stuff.

Six other cases in community, all in children attending one school.

First child seen dead one hour later.

Funeral attended by everybody.

County health officer at end of month reports four cases of diphtheria for his county.

Report from private physician in adjacent county tells of four cases in his own practice in children who visited the community above referred to.

And so it goes.

## THE SOUTHERN MEDICAL ASSOCIATION.

The Southern Medical Association meets November 14-17 next, in Hot Springs, Arkansas. One of the best known and most popular members of the Tennessee State Medical Association is President this year—Dr. Jere Crook of Jackson. Hot Springs is at our very door. Special reduced railroad rates will be offered. There is ample hotel space to accommodate all who may attend. The papers in the various sections of the scientific assembly are of excellent character and a pleasant and profitable time can be spent. Then there is the added pleasure of meeting old college mates. When "Jerry" delivers his presidential address, let him face the largest delegation that ever attended the Sothern Medical.

## NOTES AND COMMENT.

Extensive repairs are well under way which will double the capacity of Vanderbilt Hospital. The building at the corner of Fifth Ave. and Elm Street will be devoted entirely to the hospital. The laboratories which formerly occupied this building have been moved to the Litterer Laboratory Building and the Stone Building in the Campus. Hereafter only clinical teaching will be done here in the hospital and dispensary. The repairs will be completed in ample time for the opening of school.

Seventy cases of diphtheria have developed in one Middle Tennessee county within about two weeks.

We have it on the authority of one of our best "specialists" that the removal of tonsils cured a case of "facial paralysis" over night and that the same procedure cured a case of "high blood pressure" with "casts in the urine" in two or three days. Post hoc, ergo propter hoc; gets us by a lot of times.

The quacks argument for his cancer cure may be that scientific medicine has no better.

## LOCATION FOR SALE.

I will sell at a sacrifice a $5,000. country practice and my handsome 10-room colonial dwelling, situated in a beautiful grove of oaks. Electric lghts and water, garage, good barn, orchard and 21 acres of land. On a 50 ft. highway, best neighborhood in West Tennessee, 1 1-4 miles from Consolidated School and $15.-000 church. Collections good, nearest physician 9 miles. Address,

J. C. Norvell, M. D.
Brownsville, Tenn.

## DR. WILLIAM BRITT BURNS.

### President Tennessee State Medical Association, 1921-22..

Dr. Burns was born in Shangaloō, Webster Parish, Louisiana, on February 26th, 1869. He went with his parents and an older brother to Prescott, Nevada County, Arkansas, where he lived on a small farm, a mile and a half from the town, until he was twelve years old, when he moved to town to reside and incidentally to go to school. Prior to this time he was tutored by his good mother and older brother. He attended the Tom Allen High School at Prescott, and at the age of fifteen engaged himself to the manager of the telegraph office to carry messages and do odd jobs, a kind of assistant helper around the railroad station, and for such services he was permitted to learn the art of telegraphy. At the age of sixteen he had become proficient enough to take employment as night operator, and in 1888 was promoted to the dispatcher's office at Little Rock, Ark., where he at once attached himself to a good live, up-to-date practitioner of medicine, in the person of Dr. George W. Hudspeth, for the purpose of studying medicine in connection with his job with the railroad company. Here for three years he worked and studied eighteen hours a day. Fortunately his studies were confined to Gray's Anatomy and Dalton's Physiology; so there was but little for him to unlearn when he entered medical college, and he was given the work of prosector and demonstrator to his section on anatomy, for which he was given credit on his dissecting fees as an honorarium.

He entered the Kentucky School of Medicine, at Louisville, where he graduated with a good average in 1892, and returned to Little Rock after his graduation, where he undertook to practice medicine in the day time and the art of telegraphy from 5 P. M. until midnight. He did some practice but was not remunerated for it. Who does not remember the panic of 1892 and 1893?

Notwithstanding the paucity of his pecuniary status, in 1893 he went back to Louisville, Ky., and married the sweetheart of his early student days, Miss Georgie May Vallandigham This union was blessed with a son and a daughter. The son, Dr. Coleman Craig Burns is engaged in the practice with Dr. Burns, and the daughter, Mary Britt, was recently married to a worthy and prominent young man, Mr. Eugene Butler.

In 1896 Dr. Burns left Little Rock for the country, and after a time located at Deckerville, in north-eastern Arkansas, where the remuneration for his labors was sufficient to permit him to do some post-graduate work in New York, and to attend medical associations; to provide himself with medical books and periodicals, and most of the working tools of his profession. While at Deckerville he did some of the best work of his life; having done real pioneer work in malaria; checking the work of Ross, Mason and the Italians. He contributed a paper to the Tri-State Medical Association at Memphis in 1899, entitled, "The Mosquito as a Definitive Host in Malaria," which, while at that time appeared too far removed from the yellow cucumber and the green water melon as etiological factors in malaria, compares almost word for word and line for line with the papers contributed by the malarial experts on this subject today.

It was while at Deckerville that Dr. Burns was elected secretary of the Section of Medicine of the American Medical Associaton, at the Atlantic City meeting in 1900, and served at the St. Paul meeting in 1901. He was also chosen by this section as its delegate to the first House of Delegates, at the Saratoga meeting in 1902. His duties at this place led him into a considerable volume of minor surgery and an occasional amputation of an arm or a leg, which withal laid the foundation for the practice of general surgery that he was later to take up.

Dr. Burns came to Memphis to live in 1901 and took offices in the Porter Building, where he has been ever since. He became attached to the Memphis Hospital Medical College almost at once, and after a few months obtained a place on the staff of St. Joseph's Hospital, as pathologist, and later on the Medical Staff, and about the same time he was appointed Division Surgeon of the Frisco Railroad. Later on he was elected by the City Council to the surgical staff of the Memphis General Hospital, where he served for a number of years, and

DR. WILLIAM BRITT BURNS
President Tennessee State Medical Association, 1921-22.

during which time he was chairman of the Training School for Nurses. To the nurses he lectured on Surgical Pathology. In the Memphis Hospital Medical College he was connected with the chair of Materia Medica and Therapeutics, and after consolidation with the University of Tennessee was assistant to the Department of Surgery and lectured on Clinical Surgery.

Dr. Burns was Vice-President of the Tri-State Medical Asociation, (Arkansas, Mississisippi and Tennessee) in 1900, and second Vice-President of the Mississippi Valley Medical Association in 1903; Vice-President of the Memphis and Shelby County Medical Society in 1916, and President of the Memphs and Shelby County Medical Society in 1917. He is a fellow of the American College of Surgeons.

Soon after taking up the practice of general surgery Dr. Burns noticed that many of the cases of head injury treated on the expectant plan died; so he began to operate early in these cases coming under his care, and his position has been thoroughly justified by the results obtained from his method of treatment of head injuries. Of seventy-nine cases trephined, there have been but nine deaths; and this lot of operated upon included all grades of injuries.

Some of the most notable contributions of Dr. Burns to medical literature were upon the subject of malaria—namely his essay on "Malarial Hemoglobinuria," read before the medical section of the American Medical Association, at Columbus, Ohio, in 1899, and published in the Lousville Journal of Medicine and Surgery, in 1899. The article was well received by the Association and provoked liberal discussion. "Some Phases of Malaria; Quinin In," was read before the Mississippi Valley Association in 1899, at Chicago, and was published in the Louisville Journal of Medicine and Surin 1900. An essay contributed on malaria, entitled: "Malaria, Latest Developments;" was published in the Louisville Journal of Medicine and Surgery; and in 1900 he contributed an article on "Infantile Malaria," which was read before the Mississippi Valley Medical Association at Asheville, N. C., and was published in the Louisville Journal of Medicine and Surgery in 1901; this being the earliest treatment of the subject as related to children. The Doctor contributed an article entitled, "Mosquitos in Malaria, a Further Consideration," which was read before the Tri-State Medical Association (Miss. Ark. and Tenn.) at Memphis in 1900, and was published in the Memphis Medical Monthly in 1901. These articles revealed the fact that the Doctor had devoted much time and thought to the subject, and his thoughts were confirmatory to the opinions of those other pioneers in the study of the etiology of malaria in this country and abroad. He also delivered the "Address in Medicine," before the Tri-State Medical Association, in Memphis, in 1901, which was a resume of the progress of medicine and was carefully and accurately compiled, and is of value from a historical as well as a literary standpoint. This article also was published in the Memphis Medical Monthly.

Dr. Burns was invited by Dr. Tuley to contribute the chapter in "Malaria in Children" when writing his text book on Diseases of Children and those who have read the work can bear testimony to the soundness of his views on this great question.

In 1906 Dr. Burns read an article entitled: "Head Injuries, Report of Three Cases; Bearing Especially Upon Injuries of the Middle Meningeal Artery; the Free Interval," which was read before the Mississippi Valley Medical Association in 1906 at Hot Springs, and was published in the Lancet Clinic. In 1908 he reported a series of abdominal operations before the Frisco Surgeons Association at St. Louis, which was printed n the Lancet-Clinic that year. In 1912 the Doctor contributed an article entitled, "Burns Treated by Skin Grafting," describing the successful treatment of extensive burns by that method, before the Memphis and Shelby County Medical Society, which was published in the Memphis Medical Monthly. Here he used skin from amputated limbs of other patients, a method original with him. Another article read before the Arkansas Medical Society at Little Rock, in 1913 entitled, "Splenectomy," was published in the Journal of the Arkansas Medical Society in 1913.

Probably Dr. Burns' most notable contribution to medical literature was the case reported in his article entitled, "Successful Ligation of the Innominate Artery," for the cure of aneurism of the subclavian, which operation was performed at the Memphis General Hospital. The case was reported before the Section on Surgery and Anatomy at the fifty-ninth session of the American Medical Association, held in Chicago, in 1908, and was published in the Journal the same year. The Doctor devoted much time and thought and performed much labor in preparing himself for the successful performance of this masterful undertaking, the plan of which was mapped out carefully before the operation was undertaken. The different steps of the operation were taken with a precision and accuracy which could not have been done by any except a master of the subject. His name will go down to posterity with the names of Mott, Lynch, Bull, Cooper, and Smyth, of New Orleans, as well as a few others in this country and some in England, Scotland and Ireland in regard to the subject of the surgery of the important blood vessels. In addition to the report of the case the Doctor operated upon with marked success, a complete review of the literature on the subject was incorporated in his article, which is of great assistance to and will save much time for any one who desires to review the literature on the subject of surgery of the vascular system.

Dr. Burns has contributed many other articles not mentioned in this review, to medical and surgical literature; enough has been said, however, to impress the reader with the fact that he has been a worker all of his life, and that he has contributed something to the profession which has contributed so much to him. I am sorry to say that this cannot be said about many men engaged in the practice of the healing art, who have been the recipients of many favors and enjoyed many privileges simply because they were doctors, and not because they as doctors had done anything of value to the profession. His professional activities alone entitled him to be chosen by his fellows as President of the Tennessee State Medical Association; however, I am of the opinion that his conscientious and persistent efforts in behalf of the members of the medical profession as a whole; working in season and out of season for the betterment of the profession; his devotion to duty, his congeniality, and his untiring efforts to something for the doctor, contributed no little to his elevation to that exalted position in which he was placed by the unanimous wish of his brother doctors.

Dr. Burns is essentially a home man, a devoted husband and father, is loyal to his friends and true to his convictions, and will always be found espousing the cause to the utmost of his ability which he thinks is right and which he believes to be in the interest of humanty. His love for and his interest in the members of the medical profession in his home city and the territory contiguous thereto is well known to all, and he has but to know that some of the brethren contemplate a visit to a medical society in a distant city when all arrangements for the accommodation and comfort of the voyagers have been arranged for by this good man. He derives a great deal of pleasure out of the act of doing something for some one else.

Much more could be said than has been said, but enough I trust has been said to acquaint the profession of Tennessee with many of the characteristics and virtues of the worthy man whom we promoted to the Presidency of our Association at its last meeting in Nashville; a man who would scorn the proffer of a privilege by the powers that be provided every worthy member of the medical profession was not eligible to apply for the same. He is preeminently fair and professionally unselfish to a fault.

May he live long to continue to work for humanity and for the uplift of his profession is the wish of one who knows him well.

Frank D. Smythe.

## GOLF!

## MEDICAL CHAMPIONSHIP OF THE SOUTH.

To be held at Hot Springs, Arkansas, during the Southern Medical Association meeting in November.

A. Championship of the South—18 holes low medal score.

B. Handicap championship — All players are required to obtain their handicap from the home club and present it with par score for home course. Play for handicap championship will be at the same time as the championship round.

If it is possible, four-men teams from various clubs or cities will decide the Southern team championship.

Entries are requested at earliest moment.

E. R. Smith, Chairman.
Dungan-Stuart Bldg.,
Hot Springs, Ark.

## EAST TENNESSEE MEDICAL ASSOCIATION,

The regular semi-annual meeting of the East Tennessee Medical Association will be held at Knoxville on October 13 and 14. The Secretary states in his official announcement that every busy doctor in East Tennessee is expected to attend. The doctors who have most to do are always on hand at society meetings. The thing that makes them go is the same thing that makes them develop into competent and busy physicians.

The East Tennessee Medical Association is at this tme probably the best organized and best working soeiety in the state, barring a few of our county societies and the State Association. Two meetings a year are held, always with a full program and a good attendance. Knoxville is the ideal place for this organizaton to hold its sessions, since every railroad in East Tennessee goes to Knoxville direct or has easy connections, and because hotel accommodations are adequate.

Dr. E. C. Anderson, Chattanooga, is President, and Dr. G. Victor Williams, Chattanooga, is secretry for this year, and all communications relative to the Knoxville meeting should be addressed to Dr. Williams.

## HEART IN DIPHTHERIA.

The cardioclinical and cardiographic observations reported by S. Calvin Smith, Philadelphia, (Journal A. M. A., Aug: 27, 1921) are based on a study of 242 patients suffering from diphtheria of varying severity and extent, involving the respiratory tract. The vast majority presented a rapid heart rate as the only evidence of cardiocirculatory disturbance on admission. Seventy-two per cent of the number progressed through convalescence from diphtheria without any further evidence of cardiac disturbance The other 28 per cent after a lapse of several days in the hospital, showed vagaries of the pulse and some of them gave evidence of grave cardiocirculatory fault. It thus became evident that the heart abnormalities encountered in these studies of diphtheria could be divided, for the purpose of discussion, into two groups in the order in which they appear, namely, a period of what may be called initial tachycardia, including the vast majority of admissions; secondly, those who later on presented irregularities of convalescence, embracing 28 per cent. of the total number. Smith points out that the earlier antitoxin is used intravenously, the less likelihood there is of eventual heart muscle poisoning. That objection which parents or patients may have to the intravenous use of antitoxin—the fear that it may cause sudden death—can be met by protecting the patient against the ever-present possibility of lethal anaphylactic shock through the simple expedient of first employing a desensitizing dose (0.5 c.c.) of antitoxin; an hour after this small subcutaneous dose the full therapeutic dose can be slowly administered intravenously Heart care should extend far beyond the usual quarantine period prescribed by law. In protecting from overstrain the child heart which has passed through diphtheria or any other acute infection, regulation of school life is an important point to be considered. "Cardiac classes," where weaker children have comfortable furnishings, limited hours of study, stated and regulated periods of play, and where they are excused from routine gymnastics, fire drills, marches, etc., need not be limited to the large centers of population. Atropin is of doubtful utility in the tachycardia of diphtheria. Digitalis is distinctly contraindicated in diphtheria. Epinephrin, despite its fleeing action and the consequent necessity of repeated administration, wll likely prove to be the stronger member of the usually inefficient group of drugs which are employed in the treatment of diphtheritic heart block. Strychnin, by stimulating the suprarenals and causing an increase in suprarenal secretion, ma have a simliar beneficial cardiac effect, although the circulatory failure attendant on toxic heart block is likely to inhibit the response of the suprarenal glands to such stimulation. Caffein, in the latter days of convalescence from diphtheria, often proves to be a valuable aid in improving circulatory tone, as may also such systemic tonics as iron, quinin and strychnin.

## SEQUALAE OF COMMUNICABLE DISEASES OF CHILDHOOD AS A PUBLIC HEALTH PROBLEM.

In the opinion of Isaac A. Abt, Chicago (Journal A. M. A., Aug., 27, 1921) the most valuable lesson to be earned from the study of the sequalae of the communicable diseases is of the need to emphasize the disastrous results not only of the immediate but also of the remote effects, and to urge on all concerned the great importane of their prevention. The most important factor in the prevention of the acute communicable diseases is the acquisition of more definite knowledge as to their cause and their mode of transmission. Experience has taught that intelligent preventive measures can be carried on when exact etiologic factors are known. A rational campaign for prevention of infection must depend on a definite knowledge of the exciting organism, its method of transmission, and its life cycle within and without the body.

## EXPERIMENTAL INOCULATIONS IN SCARLET FEVER.

Following preliminary negative Wassermann tests, blood was withdrawn by George F. Dick and Gladys Henry Dick, Chicago (Journal A. M. A., Sept. 3, 1921) from the veins of four patients suffering from uncomplicated scarlet fever shortly after the onset of the disease, in one case just as the rash was appearing. The blood was allowed to clot and immediately centrifuged just enough to separate the serum. Within fifteen minutes after the withdrawal from the patients, the supernatant blood serums were swabbed on the tonsils of four volunteers, one volunteer being used for each serum. Daily observations were made as to sore throat, fever and rash on the skin or palate. No positive results were obtained. Serums obtained in the same way from six patients with scarlatina were then inoculated subcutaneously into a series of six volunteers, one volunteer being used for each serum. In each case, on the day following the inoculation, the site of the injection could be located by the needle wound. There was in no instance a local or a general reaction. Five cubic centimeters of citrated whole blood was withdrawn from each of five patients with scarlet fever and immediately inoculated subcutaneously into a series of five volunteers, each volunteer receiving the blood from one scarlet fever patient. The result of these experiments were also entirely negative as to local and general reaction. Mucus swabbed from the throats of patients having early cases of scarlatina was swabbed over the tonsils and pharynx of five volunteers, each volunteer receiving material from one scarlet fever patient. No positive results were obtained in the series of fifteen inoculations with filtered throat mucus. Following these negative results, six patients with scarlet fever were given bouillon to gargle and, after filtrating, this bouillon was inoculated subcutaneously into a corresponding number of volunteers. Each volunteer received material from one scarlet fever patient. The three persons who receive the largest amount of material showed a slight local redness and slight induration at the site of inoculation at the end of forty-eight hours. In one case the localized induration lasted four days. No positive results were obtained in this series.

## LARYNGEAL DIPHTHERIA.

As 82.11 per cent of the deaths from diphtheria in Baltimore city for 1919 and 1920 were due to laryngeal diphtheria, and as the fatality was in inverse proportion to the promptness with which the physician was called, and antitoxin administered, and as intubation was performed in only one half of the fatal cases and antitoxin given in only 83.74 per cent., it is clear to John F. Hogan, Baltimore( Journal A. M. A., Aug. 27, 1921) that the hope of the desired reduction in the death rate lies in earlier recognition and timely treatment with antitoxin and intubation.

## BOOK REVIEW

TUBERCULOSIS OF CHILDREN—ITS DIAGNOSIS AND TREATMENT, by Professor Dr. Hans Much, Director of the Department for the Science of Immunity and for Research of Tuberculosis at the University of Hamburg, Germany. Translated by Dr .M ay Rothschild, Medical Director of the California Sanitorium for the Treatment of Tuberculosis, San Francisco and Belmont, California. The McMillan Company.

This volume, according to the translator's preface, presents the coordinated efforts of Hans Much and George Deycke of Hamburg and is edited by the former. The extent of the work on which the publication is based, the fact that it presents almost wholly original effort, Much's manner of presenting evidence and analogies, and of drawing definitely expressed conclusions therefrom make the book of much more than passing interest.

In view of the work of Opie and others, however, some of these conclusions seem as yet not entirely proved. For instance, the positive assertion on page seventeen that "wherever tuberculosis is found, it has started in the first years of childhood, and during this age most people pass through a tuberculosis infection." While the latter statement may be taken as fairly well proved, that all cases begin in childhood is not yet an established fact. Opie, for example, has presented evidence that "apical tuberculosis does not have its highest incidence in early adult life when the focal lesions of childhood are fresh but is more common in later life when the focal lesions of childhood have in most instances completely healed."

Much's discussion of tuberculosis immunity is well said to be startling. The exposition of his theory is clearly and concisely set forth and deserves careful consideration.

After certain deductions with reference to "toxin over-sensitiveness" and "anti-body over-sensitiveness" treatment with partial antigens or "partigens" is discussed with the statement that all forms of tuberculosis are adaptable to this treatment unless there is an entire absence of anti-bodies. The results in renal and peritoneal tuberculosis are said to be remarkable. The question of prophylactic vaccination is considered and work by the authors in the immunization of cattle and pigs is claimed to justify further experimental work in view of the fact that "they succeeded for the first time in producing tuberculosis immunity through non-living bacilli." The application of this principle to prophylactic vaccination for man is offered as an open question and is said to be encouraged "by the extremely lasting immunity in man . . . afterwards even light infections, and the possibility to create immunity in animals through harmless non-living material." The qualifying statement is made, however, that immediate or miraculous results must not be expected.

A special part is devoted to tuberculosis in children and is a translation of one of Much's latest monographs. The central idea around which this monograph seems to be constructed is "that tuberculosis of the adult develops from an infection in childhood; consequently, any attempt at its eradication must begin by providing effective treatment in childhood, as at that period the disease is easily curable and the resulting immunity insures a lasting protection for the balance of that individual's life."

Very thorough discussion of both diagnosis and treatment of the tuberculosis of children is included and here as in the "General Part" much space is given to an exposition of the author's work and views with reference to partial antigens or "partigens."

Taken as a whole, the book is well written, clear, concise and definite in description and statement, and, while there is much contained in it with which many will disagree, deserves careful intelligent study.

E. L. B.

## TREATMENT OF INFECTED ABDOMINAL WOUNDS BY CLOSED METHOD.

The treatment advocated by Thomas J. Watkins, Chicago (Journal A. M. A., Aug. 27, 1921) for infection of abdominal wounds is the "closed method:"

1. No sutures are removed until the wound is healed.
2. No drainage material is inserted.
3. No probing or manipulation of the wound is permitted.
4. Moist dressings are kept continuously over the wound as long as it remains reddened or indurated, care being take not to macerate the tissues excessively.

The moist dressings accomplish efficient drainage A large amount of drainage will take place through the small openings if the discharge is not permitted to dessicate and close the openings. Proof of efficient drainage can be obtained by turning the patient so as to test the drainage by gravity. Drainage occurs through small gappings at the edge of the wound and at times along the sutures. No exception to this treatment is made when intestinal fistulas or sinuses is present. There is no danger of premature closure of the wound at the surface. It is impossible to obtain permanent closure as long as a foreign body remains, which is the condition present in case of fistulas and sinuses. Watkins does not claim originality for this treatment.

# COME TO THE 46th ANNUAL MEETING

OF

# THE MISSISSIPPI VALLEY MEDICAL ASSOCIATION

## St. Louis, October 13, 14, 15, 1921

A process of extraordinary excellence is being arranged consisting principally of Clinical Demonstrations and Discussions.

Every speaker will present a discussion of some clinical subject augmented by descriptive cases. Two days will be devoted to this sort of demonstration.

The third day will be devoted wholly to clinical work in the numerous hospitals of St. Louis.

The program has been designed with special reference to instruction for the general practitioner, each number discussed a borderline subject.

Among those on the program are:—

Dr. Llewellys F. Barker, Baltimore.
Dr. Anthony Bassler, New York.
Dr. Chas. H. Frazier, Philadelphia.
Dr. John de J. Pemberton, Rochester, Minn.
Dr. Isaac Abt, Chicago.
Dr. C. Jefferson Miller, New Orleans.
Dr. Rueben Peterson, Ann Arbor.

**For further information address Dr. William Englebach, Chairman of the Committee of Arrangements, University Club Building, St. Louis**

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## CASE REPORTS.

By
J. F. Gallagher, M. D., F. A. C. S.,
Assistant Professor of Gynecology, Medical Department, Vanderbilt University, Nashville. Tennessee

**Case 1—Fimbrial Cyst.**—An unmarried seamstress, age 35, was admitted to the hospital with the following history: at 8 A. M. of the day of admission, she was seized with a severe, paroxysmal, lancinating pain in the right iliac region. This pain was so severe that patient fell to the floor and almost fainted. She stated that while the pain never abated, at intervals it was very severe. She was nauseated and vomited several times. When seen, some four hours after the onset of the attack, the patient was still in great pain, but not so much so as in the early hours of the attack.

Her menstruation began at the age of thirteen. She had always been regular and of the twenty-eight day type. The duration is four days, soiling three or four napkins daily. She has never had any dysmenorrhea nor has there ever been any leucorrhea. Her latest menstruation was one week prior to the present illness, and she had menstruated regularly one month previously.

She remembers no previous illness except mumps.

Her family history is unimportant.

The positive findings on physical examination were: that her teeth were very bad, there being many snags and crowns and some pyorrhea. The abdomen was even in contour and moved on respiration. There was marked tenderness and rigidity in the right lower quadrant. On vaginal examination, the vulva was found to be normal. The vagina admitted two fingers with some difficulty. The cervix was normal. To the right of the uterus a firm, fluctuant mass was found, which was movable. It did not seem connected with the uterus and was extremely tender.

Her temperature was 97 F, pulse 75, respiration 22. The white blood count was 12,400. The urine was entirely negative.

A pre-operative diagnosis of ovarian cyst with twisted pedicle was made, though this was not so evident before the pelvic examination. Appendicitis was thought of, but immediately ruled out on account of the severity of the pain. It has been my observation that appendicitis of whatever degree of pathology is not accompanied by agonizing pain. Gall-stone colic, renal colic, perforated duodenal ulcer, ruptured ectopic pregnancy and ovarian cyst with twisted pedicle may have this type of pain, but I do not believe it occurs in appendicitis very often. A hemorrhagic ovarian cyst of whatever size may be accompanied by rather severe pain, but it is continuous. I might add in passing that the two conditions of ovarian cysts herein mentioned are the only ones in which pain is present. And I am constrained to ask, when will surgeons stop operating on women for diseased ovaries of the so-called cystic degeneration kind? I often wonder whether these surgeons know what a normal ovary is, and what is the appearance of an atretic follicle or a corpus luteum. It is common observation that ovarian cysts are removed which have destroyed all the ovary, and the only symptoms complained of were those referable to pressure and disturbed menstruation.

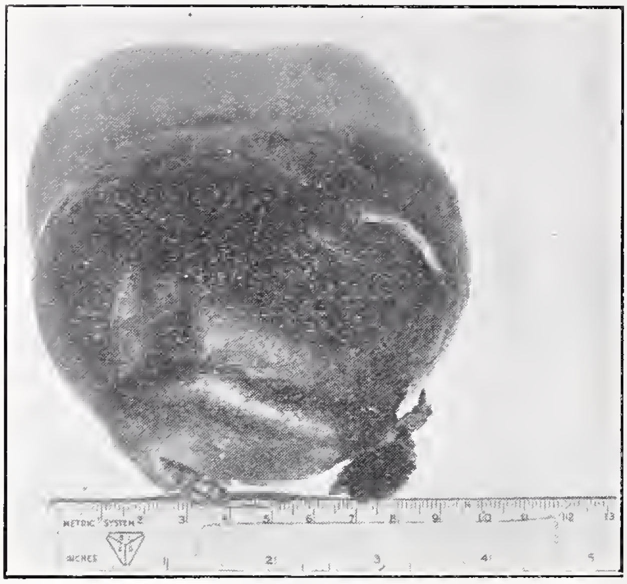

Figure 1.

Note Fallopian tube arching over cyst, with dog-ear-like fimbrial extremity protruding. Also, the small pedicle of the cyst which is unusial for these cysts which arise in the broad ligament.

At operation, a cyst which had twisted three and one-half revolutions was found. After this was removed, a normal ovary on the same side was found in its usual location. On further exploration, a small fibroid was found on the posterior surface of the uterus. This was removed. A Meckel's diverticulum was found in the small intestine about fourteen inches from the ileo-cecal junction. The appendix was sought for but not found.

An abstract of the pathological report by Dr. B. T. Terry is as follows: "The cyst measures 10x8x5 cm. Along one side is the swollen and deeply congested tube. All of the tube is embedded, except the swollen and hemorrhagic fimbriated extremity. The cyst wall is thin, congested, and shows injected vessels, and is continuous with the peritoneal coverings of the tube. . . The cyst contains a serous fluid." Microscopical Pathology: "The specimen consists of a fibrous tissue which evidently formed the wall of a greatly altered Fallopian tube. The villi of this tube have almost entirely disappeared. . . . Other sections apparently taken from the wall of the cyst also show numerous dilated blood vessels and abundant hemorrhages. A little epithelium suggesting that of the Fallopian tube covers papillary projections and lines a small cyst in the wall. There is no evidence of ovarian tissue."

This specimen may be placed under the indefinite head of broad-ligament cysts. According to Williamson and Barris, (1) this type may have their origin from four different structures, viz; (a) the fimbria ovarica of the tube, (b) the parovarium or the organ of Rosenmuller, (c) accessory Fallopian tubes or ostia, and (d) the hydatid of Morgagni. Quoting Williamson and Barris further, they stated that "recent work by Keith (2) has shed a new light upon the origin of many broad ligament cysts. It has long been commonly accepted that the so-called 'parovarian' cysts arose from the organ of Rosenmuller. Keith has demonstrated that many broad-ligament cysts arise from developmental remains in the fimbria ovarica of the Fallopian tube. . . It is probable that most broad-ligament cysts which attain a large size and assume clinical importance arise from these structures, and are therefore pronephric, not mesonephric, in origin. The term 'parovarian' is incorrect when applied to such cysts, and it is proposed to substitute the term 'fimbrial.'" Both the gross and microscopic appearance of the specimen pictured herewith (Fig. 1) correspond very closely to those described by Williamson and Barris.

The patient made an uneventful recovery and walked from the hospital on the twelfth day.

(1) Herbert Williamson & J. D. Barris. Eden & Lockyear System of Gynecology Vol. II. p. 801.

(2) Jour. of Obstet. & Gyn. of British Empire, Oct. 1910.

**Case 2—Papillary Bi-lateral Cystadenoma (Everting) of the Ovary.**—A married housewife of 45 years entered St. Thomas complaining of swelling of the abdomen. She stated that about one month previous she noted a tightness in the lower part of the abdomen. In a few days she noticed a distinct swelling and soreness, and went to bed. Frequent urination and difficulty in respiration were noted. About ten days from the onset of the trouble, a physician was called and removed, through a trocar inserted in the left flank, two gallons of yellowish fluid which coagulated on standing. Her appetite is fair, but she is unwilling to eat on account of a sense of fullness it produces. Her bowels are slightly constipated. She has not been aware of any fever. About ten pounds in weight have been lost since her present illness began.

The patient has had the ordinary diseases of childhood. She had malaria at 18 years of age. For the past twelve years the patient has had diarrhea at intervals, associated with tenesmus. No blood has been present, but occasionally mucus has been observed. She states that this diarrhoea is definitely related to indiscretions in diet.

Her menstruation began at the age of 16. She has always been regular until the past two years. She is of the twenty-eight day cycle, and her periods last seven days. She soils one or two napkins daily. There is a slight dysmenorrhea. She has had a slight mucous leucorrhea.. She has had six children, all living, of whom the youngest is six, and the oldest 22 years of age. She has had no abortions or miscarriages and no puerpual infections. For the past two years the patient has had amenorrhea for two to six months at a time. In the fall of the year previous, the patient states that she menstruated every three weeks for three consecutive periods. Her last period occurred four months ago.

The family history is unimportant.

On physical examination a small movable tumor was found in the scalp in the left temporal region. The teeth are poor, and there is evidence of pyorrhea. The posterior cervical glands are palpable. The chest is flat, but there is a distinct bulging of the right and left third costal costal cartilages. The breath sounds are somewhat emphysematous over the outer chest, but are diminished posteriorly. The heart is negative. The abdomen is uniformly and markedly distended. In the lower quadrants a firm, tender mass is felt. There is unmistakable evidence of fluid present. The abdomen was tapped in the midline before further examination was made, and 4100 c.c. of clear, yellowish fluid withdrawn. On vaginal examination, the vulva was normal, save for a perineal tear of the second degree. There was nothing of importance noted about the cervix. In the region of the broad ligaments two masses were felt, which were hard and tender. The one on the patient's right seemed the larger. The uterus was not outlined. Examination of the urine was negative. The blood examination showed a white blood count of 6,000; the red blood cells, 3,850,000; and a hemoglobin per cent of 75.. The temperature on admission was 97.4; the pulse 75. The patient's general condition was not good, for she was thin, pale and weak.

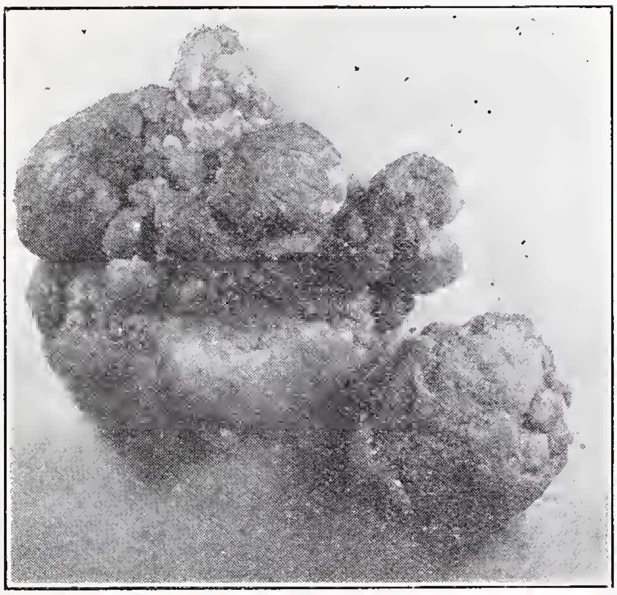

Figure 2.

Bi-lateral papillary cystadenoma (everting) of the ovary.

On account of the presence of fluid in the abdomen, its rapid accumulation, the shortness of the duration of the illness, and the presence of masses which were found only in the pelvis; together with an absence of other positive findings which might cause ascites, a pre-operative diagnosis of malignancy of the ovaries was made. The bilaterality of ovarian malignancy should ever be remembered.

Operation was done on the day following admission. On incision, the abdominal wall was very thin. A quantity of yellowish fluid escaped, and upon inspecting the pelvis, two masses covered by a papillomatous growth were seen on either side and completely covering the uterus. The great omentum was attached to these masses and contained these papillary growths. These masses were quickly and easily enucleated from their bed in the pelvis, but it was impossible to remove all of the papillary growth which had extended to the surrounding peritoneum. The pulse was 120 before and after the operation. On the day following operation, the temperature reached 102 F., and the pulse dropped to 115. There was considerable abdominal distension, but this was reduced by pituitrin and enemas. On the afternoon of the second day, the temperature was 99, and the pulse 105. The abdomen was flat, and there had been a good bowel movement. On the afternoon of the third day the temperature rose to 103 F., and the pulse to 120. Pain was complained of in the left chest. There was an impaired resonance and moist rales present, but no definite signs of consolidation. The following day the temperature was 102.6, and pulse 140. On the next day, the fifth since operation, the temperature was 100.4, and pulse 112. No new physical signs were elicited in the chest. The abdomen was soft and flat. There was no vomiting. On the afternoon of the sixth day the temperature rose within an interval of four hours from 100.2 to 108 F., rectal. The patient was in a profuse sweat. The pulse, which was 110, gradually became faster and weaker, and the patient died.

An abstract of the pathological report made by Dr. B. T. Terry is as follows: "One ovary measures 7½x5½x4 cm. It contains a large serous cyst, but the major portion of the mass consists of a nodular, firm, gray to pink tissue which protrudes above the surface of the ovary. The other ovary measures 13x10x6 cm. It contains a very large serous cyst which has been ruptured, and several smaller serous cysts. Upon the surface of this cyst is a large papillary mass of rather firm pink tissue. There are several smaller and discrete nodules scattered over the remainder of the surface." (See figure 2.) The microscopic examination demonstrated its malignancy.

Carcinoma of the ovaries may be divided into two groups: (a) Genuine, idiopathic carcinoma, which develops directly from previously unchanged ovarian tissue, and (b) cystic carcinoma, which either developes from a benign ovarian cyst (carcinomatous degeneration) or starts as a cancerous cyst from the first." . . "The appearance of a malignant papillary cyst so closely resembles that of a benign cystomata that often they can hardly be differentiated macroscopically. . . . Microscopically, the anatomic appearance resembles closely that of a cancer of the body of the uterus." "Serous cystadenomata are much more prone to undergo carcinomatous degeneration than is the pseudo-mucinous variety, especially if they show a tendency to papillary growth. . . ." Clinically, the cystic carcinomata are extremely malignant, and tend to recurrence, even when they are apparently removed by operation." (Graves' "Gynecology.")

## Case 3—A Case of Unexplained Jaundice.

A white housewife, age 41, was admitted to the hospital, complaining of jaundice. Two weeks previous she had noted some general weakness and mental depression. This had occurred for several summers, and she gave this little heed. Four days later, she noticed that she was jaundiced, which increased until three days subsequently, when she was markedly so. Her appetite was good until the advent of the jaundice, but since that time she has not desired food and suffered nausea since she became jaundiced, but this is relieved by Epsom salts and bicarbonate of soda, and sodium phosphate. Her abdomen has been somewhat distended and there is marked tenderness in gall-bladder region. She has lost ten or fifteen pounds since her present illness began.

Eighteen years ago the patient had pleurisy, which was tapped twice. She seemed to have entirely recovered in five or six months. With each of her four pregnancies she has had sugar in her urine which cleared up promptly, however, after delivery in all except the latest, four months ago. After this delivery it persisted for about two months. The last baby was born dead at term. Fourteen months ago the patient had a chill with a rise of temperature to 102 F., which was unexplained. Three months ago the patient noticed she had a right inguinal hernia.

Her father died at the age of 80 from intestinal obstruction due to an appendicieal abscess. He had tuberculosis at 45 years, but recovered. Her mother died at the age of 70 of arteriosclerosis. One brother died of paresis; another of typhoid fever. One sister died of tuberculosis of the hip joint. Two sisters are living, but one has paralysis of poliomyelitic origin.

Physical examination showed a poorly nourished, markedly jaundiced woman of about 40 years of age. The sclera of the eyes are of an intense yellowish hue.. The chest is negative. The abdominal wall is thin and relaxed. There is a bulging to the left of the umbilicus in which peristalsis is quite visible. There is a diastasis of the recti. The liver margin is felt about two inches below the costal margin. The edge of the liver is sharp, smooth and harder than normal. Projecting from the edge of the liver is an ill-defined mass which is thought to be gall-bladder. The spleen is not felt. There is a general tenderness over the entire abdomen, but more marked in the region of the gall-bladder. There is a right inguinal hernia present. Vaginal examination was not made. The temperature, on admission was 98.2 F., pulse 82, respiration 28. The urine showed 2 plus albumin, 1 plus pus, and a few granular casts. Blood examination revealed 9,400 leucocytes, (polys. 75 per cent, small mononuclears 20 per cent; large mononuclears 5 per cent); 4,200,000 red cells and 100 per cent hemaglobin; coagulation time, 3 and 1-2 min. The Wassermann reaction from the hospital laboratory (which was run twice) showed an acetone insoluble four plus and cholesterinized one plus. Two other laboratories outside of the hospital reported negative. The stools were negative to parasites and fat. The stomach contents were negative to blood, and had a free acidity of 14 per cent and a total acidity of 38 per cent. A duodenal lavage was done and magnesium sulphate injected, but no bile was obtained. This was cultured and found negative. Blood-pressure 116-60. An x-ray examination was made of the stomach and gall-bladder by Dr. Howard King. He reported that the "stomach is slightly infraposed type resting just below the umbilicus. It fills well without deformities. Normal motility and empties in six hours. The duodenal cap fills without defects. The second portion of the duodenum seems to be crowded somewhat to the left conforming to a soft shadow outline. At 24 hour examination, the hepatic flexure of the colon is seen rather high and far over against the ribs as if crowded over by the soft tissue shadow. This appears to be the gall-bladder shadow. Diagnosis: probable gall-bladder pathology."

During the first six days in the hospital the patient's condition remained unchanged. The pulse varied from seventy to eighty, and the temperature from 97 to 98.2; the respiration 18 to 20 per minute. On the morning of the seventh day the patient began menstruating, this being her regular time. She was nauseated and vomited several times. The temperature rose to 101.8 and the pulse to 120. Nothing additional was made out on physical examination. The patient died late that afternoon.

A partial post-mortem was held. The abdomen contained about a quart of yellowish fluid. In patches over the peritoneum of the intestines the vessels stood out as if hyperemic. The great omentum was inflamed and rolled up near the stomach. The lesser omentum was also inflamed. Reidel's lobe of the liver was marked. The gall-bladder was normal in size, but of a pale white color. The gall passages were patent. There were no stones present.

There were no gross evidence of disease in the stomach, liver or pancreas.

Pathological report by Dr. B. T. Perry states: "Pancreas—It seemingly shows invasion by bacteria, bile staining, necrosis and round cell infiltration of the interstitial tissue. Liver—It shows necrosis, bile staining, acute hepatitis, hypertrophy and attempts at regeneration."

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## LETHARGICA ENCEPHALITIS.*

By Carrol C. Turner, M. D., Memphis.

On account of the lack of a more thorough knowledge of the clinical manifestations of this interesting syndrome and its course, the first observers of this disease named it Encephalitis Lethargica, which, as they thought at the time, would be a good descriptive name for it. The laity observing also the same noticeable and prominent symptom, namely, lethargy and sleepiness, "dubbed" it, "sleeping sickness.". Lethargy is only one of several of the most pronounced symptoms, among which are neuritic pains, double vision, extreme nervousness, melancholia and delirium. In the case of Miriam Rubin, which has recently received much publicity in the medical and lay press on account of the supposed cure accomplished by the chiropractitioners, talkativeness was the most prominent symptom noted, and so her case was called "talking sickness." In view of the symptoms and physical signs to be subsequently described, the writer suggests the term "epidemic myeloencephalitis."

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This disease has probably been among us always, although in this country our first knowledge of it followed the influenza epidemic of 1918. It has been referred to as a new disease. It was noted and studied by the Germans in 1890, following the epidemic of influenza that year, and was referred to by them as "epidemic focal encephalitis," which probably is the best name given to the disease so far.

In 1918 the disease was first noted in Vienna, then Germany, and later England, springing up in this country in the latter part of the same year. At first it was thought to be a post-influenzal manifestation, probably a meningeal and peripheral nerve affection. This contention of its being a part and parcel of the disease, influenza, still has its following in the profession. But that this syndrome is a disease entity, is most probable.

## Etiology.

That the etiology of this disease is related to influenza is unquestionable. If present in this country before at all, it was never recognized as a separate disease until the first of our influenza epidemics in 1918. Of course, the number of army camps, with their large segregations of individuals, and the thoroughness and science with which their hospitals could observe and study this disease probably had some influence upon the recognition of this sequel of influenza. At any rate, it was not with us until the epidemic of influenza reached this country. Of course, there were few affections at this time that did not give a recent history of influenza on account of the wide spread of the epidemic. Still, the disease lethargica had not been recognized prior to the first epidemic of influenza.

Of eight cases reported by Barker, four gave an immediate previous history of influenza. A fifth case gave a history of having nursed and taken care of members of his family who had had influenza. Following the epidemic of influenza in Germany in 1890, Lichtenstein spoke of the disease as influenzal encephalitis. Later Pfuhl and Nauwerck claimed to have discovered the bacillus of Pfeiffer in the diseased cerebral tissue of a case autopsied. This is less convincing now, since so little is known of the etiology of influenza itself, and the doubt of the bacillus of Pfeiffer being its real cause.

W. M. Crofton, of Dublin, reports four cases of lethargica treated with influenza antigens with favorable results. He also claims that the serum of some patients in the height of the disease of lethargica agglutinated the bacillus of Pfeiffer in dilutions up to 1:1,000.

Morse and Crump obtained at autopsy. from several cases of lethargica encephalitis, a nonmotile coccus, Gram positive organism, smaller than staphylococcus in young cultures and tending to diplococcic morphology, but bunching and increasing in size and number resembling pure staphylococcus in older cultures. These organisms agglutinated with sera obtained from two convalescants. and one patient sick of encephalitis. With normal patient's sera. there were no agglutinations.

Animal experimentations with this organism showed the following: 1 c.c. of a 24-hour boullion culture injected into a rabbit's brain caused symptoms of the disease and death. The brain was removed and showed pathology similar to that of the brains of the patients autopsied, and gave similar cultures of the organisms. The spinal fluid was negative.

Bassoe and Hassin suggest that on account of the similarity of the lesions of lethargica encephalitis and those of tripanosomiasis or "sleeping sickness" of western coast of Africa and the Malay peninsula, the former may be caused by a parasite akin to the trypanosome.

Bassoe also thinks that the etiological factor is either bacillus of Pfeiffer or an organism closely related symbiotically with it.

Levaliti and Harvier have found a filterable virus in the emulsions of brains from patients who have died with the disease. He has produced lesions in the rabbit similar to those in man by intra-cerebral injections of the emulsion. Rabbits could also be infected by injections on the abraided surface of the mucous membrane of the nose. Therefore, they suggest that influenza predisposes to this disease by the generalized inflammations and congestion of the nasal mucosa. Of their 122 cases of lethargica encephalitis in 1918 and 1919, 46 per cent gave an immediate previous history of influenza.

Dr. Harlow Brooks states that the only relation he sees between lethargica encephalitis and influenza is that lethargica follows influenza with greater frequency, but that many cases of post-influenzal depression resemble types of lethargica.

It has been suggested that an organism similar to the globoid- diplococcus of Flexner-Noguchi of Heine-Medin's disease was the etiological factor. This has been further substantiated by the similarity pathologically and clinically between this disease and certain types of lethargica.

Of the five cases studied by the writer, two gave an immediate previous history of influenza. A third case gave a history of influenza six months previous to onset of this disease. However in this case neither the onset or course afterward had any particular relation to the attack of influenza. The spinal fluid and blood of these cases were all negative for any microscopic organism by smear and cultural methods.

## Pathology.

The disease has all the aspects of a pathological reaction to a mild infection, namely, temperature, leucocytosis and toxemia. The pathological lesions may be found in all the tissues of the cerebro-spinal system. The peripheral nerves only seem to escape. In the meninges, the pia and arachnoid seem chiefly to be involved as a lepto-meningitis. In these tissues the reaction is mild anl consists of a congestion of the blood vessels, with a perivascular infiltration of serum, red cells, lymphocytes, neutrophiles and plasma cells. In some cases the serum exudation seems to be in excess and gives the meninges a cloudy, edematous appearance.

Microscopically the gray matter is redder than normal and patechial hemorrhages may be seen with a hand glass throughout the gray and white matter of the brain. In severe cases the brain is wet and has a doughy feel.

In six cases autopsied by Morse and Crump, they report no degeneration of the cerebral neurones. Their findings indicate that most of the perivascular infiltrations were in the white matter, especially of the caudate and lenticular nuclei, optic thalami, pons, medulla and posterior portions of cord. They point out that in spite of the profound symptoms, the patients who recover usually return to a normal state, which substantiates their statement that there is no parenchymatous or neurone degeneration. They think that whatever injury is produced is in the lesion of the internal capsule, and white matter lower down. The involvement of the cranial nerves which produce such constant symptoms is due to the close admixture of the white and gray matter in the pons and medulla. As against von Weisener's and Bassoe and Hassin's findings, which led them to simulate the disease to poliomyelititis and Heine-Medin's disease, Morse and Crump never found any lesion in the anterior horns of the cord, but frequently affection of the vessels supplying the posterior horns of the cord. This correlates with the physical findings that though the reflexes are sometimes lost, as in tabes, there is no paralysis.

Contrary to Morse and Crump, Bassoe and Hassin report changes involving the entire central nervous system—both parenchymatous and interstitial. They also point out that the parenchymatous changes are principally cortical, while the interstitial are in the peduncles, internal capsule, pons, bulb and cord. In the basal ganglia, both parenchymatous and interstitial lesions occur.

They claim that histo-pathologically, the lesions of lethargica are identical with those of the African "sleeping sickness," trypanosomiasis.

Levaditi and Harvier, in the disease produced in rabbits from the intra-cerebral injections of emulsified brain tissues of dead patients, report the following findings: Mild meningitis in which lymphocytes and plasma cells predominated and perivascular infiltration of the gray matter with polys.

As to the location of the pathology, we are certain that in nearly all cases the tissue about the aqueduct of Sylvius and the floor of the fourth ventricle are pathological. This may be indicated by the eye symptoms which are the most constantly observed, and which are reported in some cases to be the only symptoms present, i. e., extra-ocular and pupillary palsies which without other signs indicate involvement of the 3, 4, 6, nerve ganglia.

One of our cases went to autopsy and the following were the findings:

Scalp and calvarium normal. The calvarium removed without adhesions to dura. Dura normal. The fluid was increased in amount and the pia and brain were wet and soggy. On cutting all the vessels looked congested, especially those of the pia. Petechiae were seen throughout the white and gray matter of the cerebrum. Microscopically these were periascular infiltrations of red cells and lymphocytes. These finlings were equally distributed throughout the brain substance and the mid-brain and pons.

One of the most striking findings was the enormous engorgement and congestion of the choroidal plexuses. They took up nearly all the space of the ventricles and felt friable to pressure.

The only focal symptoms present in this case were diplopia, unequal fixed pupils and stertorous, rapid breathing.

### Symptoms.

These vary as widely as do the distributions of the pathological lesions. The symptoms depend upon the location of the pathology. Therefore they follow no exact sequence in onset and may be inverted. Some cases show drowsiness, apathy and lethargy as prodromal symptoms, while in other cases, these are the last to appear.

Among the general symptoms probably the most common are double vision, pupillary disturbances and either extreme nervousness or the other extreme, lethargy. However, the latter may be altogether lacking. The patients often complain of a prodromal stage consisting of general malaise, listlessness, slight vertigo and headaches. Slight fever may accompany these symptoms with constipation and loss of appetite. Depression or forgetfulness may be the first symptoms noticeable.

In a case of lethargica in a business man, forgetfulness about an important business transaction first called his attention to his malady. Among other general symptoms, insomnia and uneasiness are frequently encountered.

Dr. Chas. L. Mix, suggests a classification of the disease according to the symptoms, which is briefly, as follows:

1. Fulminant or foudroyant types, which are maniacal in form, show no lethargy and are fatal.

2. Mild abortive form with localizing signs, viz., double vision and other ocular palsies.

3. General disturbances of function without the localizing signs, characterized by fever, headache, asthenia and lethargy, and which run a course of 4-8 weeks.

4. Localizing signs, viz., double vision, mania, choreiform movements, polyneuritic and spinal cord involvements.

A brief classification of the symptoms would be well, according to the location of the pathology. However, it is to be understood that the following areas are never alone affected, therefore, the symptoms of all may dovetail into each other according to the distribution and extent of the lesions.

1. **Meningeal.**—Symptoms are headache, photophobia, hyperacusis, rigidity, especially of the back and neck with opisthotonos and lethargy or coma.

2.. **Cerebral.**—Excitability, or varying grades of depression. Forgetfulness, mania delirium, spasticity of one or several muscle movements or athetosis of fingers and toes, twitching, tremors.

Hallucinations, dementia, forgetfulness, amnesia and aphasia.

3. **Bulbar**—Extra and intra-ocular palsies, facial paralysis, deviation of tongue to right or left, dysphagia and dysarthria.

4. **Cerebellar.**—Ataxia, inco-ordination, loss of muscle sense, nystagmus.

5. **Cord**—Transient paralyses, weakness, with slight atrophy if long standing. (Heine-Medin's type.)

Root pains, paraesthesia, and anaesthesia.

**Physical Findings.**—The patient is usually undernourished, and may give a history of recent loss of weight, following a previous illness. Depending upon the period of the disease in which the patient is seen and its severity, the patient may present a state of marked excitability and restlessness, mania, delirium or may lie in bed in a normal state mentally with choreiform movements of parts of the body, or athetosis of the fingers and toes. Several cases have been reported in which the patients carried on a running fire of disconnected conversation. Sleepiness, lethargy, or stupor may be the other extreme, from which the patients may or may not be easily aroused to normal consciousness. In these cases the patients usually lie quietly in profound lethargy with eyes half shut and lower jaw dropped open, breathing stertorously.

**Head.**—The facies may be unequal, one side being drawn while the other is ironed out and mask-like. There may be twitching about the orbicularis oris or alae nasae.

**Eyes.** Ptosis of one, usually both upper lids is noticed. Twitching, periodic and rhythmical may be present of the orbicularis palpebrarum. There may be a weakness of the extra-ocular muscles with partial inability to divergence or convergence of the globes, or there may be paralysis of one or more of the muscles with internal strabismus or divergent strabismus.

The pupils may or may not be affected. Pupillary fixation to light (Argyll-Robertson pupil) usually occurs with and on the same side as the extra-ocular paralysis. This iris paralysis is transient anl may effect one pupil and then the other alternately.

**Grounds.** Usually these findings are absent. A mild degree of disc choking may occur and is usually concomitant on the side of the extra-ocular and pupillary palsy. This condition may also be transient with the other eye signs.

In one of the writer's cases there was paralysis of the left superior oblique with dilatation and fixation of the pupil on this side and with a reddened and edomatous disc. Two days after the first examination, these signs all disappeared and reappeared identically, with the exception of the disc findings, in the other eye.

**Heart and Lungs.**—The rhythm and rate of the pulse is usually inconsequential, and follows the expected course in other febrile conditions. However, if the pathology lies at the vagus inhibitory centre, an increasing pulse rate occurs at once. This is accompanied by an increased respiratory rate.

Seven of Barker's cases showed a pulse rate above 100. In a case report by Dr. Chas. L. Mix, the pulse suddenly jumped from 112 to 150 on the third day of the disease. For three days it remained between 150 and 160, then suddenly resumed its former rate of 100 to 115.. This was a fine demonstration of the invasion of the lesion with its duration of the vagus inhibitory centre.

The lungs show no indicative findings except diffuse crackling rals in the cases of recent influenza.

Catatonia is a very important sign in cases with generalized muscular rigidity and spasticity. The patient may assume any attitude in which placed. The writer's attention was first called to this when a patient in profound lethargy was set up in bed and held in this position by the nurse for a posterior chest examination. When the examination was finished, the patient retained this sitting posture unsupported. Then different of her members were placed in unnatural and weird positions and these were retained- unsupported.

**Reflexes.** These vary to such an extent they are not of much diagnostic importance. However, nearly all the cases show diminished or absent abdominal and cremasteric reflexes. The patella and bicipital reflexes may be absent or increased. Occasionally there is fanning of the toes with the Chaddock test. I have never seen a positive Babinski or

Romberg's sign, though these are reported. In the meningeal and cerebral forms, Koenig's sign may be present.

**Temperature**—This is usually of a low grade, ranging from 99.2 to 101 F. In the fatal cases an ante-mortem rise usually manifests itself.

**Blood.**—A mild leucocytosis is usually present, most cases showing no relative increase, others showing an increase in polys. A slight eosinophilia is often found.

**Urine.**—A mild albuminuria, as occurs in nearly all febrile infections. Hematuria has been reported in this disease.

**Cerebrospinal Fluid.**—This is practically always increased. It is clear and without color. Cells average between 30-50, rarely over 100. Smears and cultures are negative for bacteria. The vale or film never forms on standing. Globulin is present in one plus and three plus amounts. A reduction of Fehling's has been reported in a few cases. The Wassermann and colloidal gold curve for lues are expected to be negative. Occasionally the fluid contains red blood cells. Bloody spinal fluid has been reported in several cases and is not thought to be traumatic

**Clinical Course.**—This may extend over a period of a few weeks to several months. The localizing symptoms, double vision, vertigo, and pain, usually appear first. Drowsiness and lethargy soon set in with mild temperature. However, this symptom may not appear at all. It also may be superseded by delirium, mania and talkativeness The drowsiness usually increases to stupor, or coma, which lasts for about ten days. However, this condition may continue for months. The features are pallid and set, with the jaw dropped open. When the breathing is very quiet, the patients present a picture of death.

This condition gradually subsides, to be followed by insomnia, or inverted sleep with wakefulness, singing, whistling at night and somnolence during the day. Roasenda and Janeck report such cases with these symptoms lasting for months. However, recovery may take place following the lethargy and normal condition may be resumed at once.

**Sequellae**—Mental impairment may be permanent following lethargica. Permanent paralyses are rare.

Aniscoria, or irregular pupils are among the last symptoms to disappear. Double vision may or may not persist with these.

Myoclonus and athetosis may persist for months. A. Cecil Alport, of Edinborough, reports a case of myoclonus with general muscular rigidity and ataxia, which persisted ten months following the disease.

Dysarthia and monotone voice are late sequellae which persists for months following convalescence.

Among the less serious sequellae are nervousness, insomnia and fatigue.

**Diagnosis**—In cases with rigidity, opisthotonos, photophobia and hyperacusis with a history of acute onset, meningitis may be ruled out by the low temperature, spinal fluid, blood count, and the ability to overcome the rigidity by passive movements.

Tuberculous meningitis is simulated by the disease, but the more acute onset of lethargica with a negative spinal fluid for B. tuberculosis and improvement differentiate the two diseases.

The Argyll-Robertson pupil, lightning-like root pains, depressed patella reflexes and paresthesia suggest tabes. The more acute onset of lethargica, the temperature, and negative blood and spinal fluid, Wassermann, and improvement without antisyphilitic treatment rule out this disease.

The pathological lesions of lethargica resemble those of Heine-Medin's disease. However, in the latter the age incidence, high fever first, soon followed by paralysis, and the high blood count differentiate the two conditions. Hysteria is simulated by exaltations, acute mild psychopathies, the rigidity and catalepsy.

Botulism differs in the more sudden onset, the quicker invasion of the medullary centres, the absence of lethargy and the fatality.

Sydenham's theory involves the muscles of one side usually. These are not so constant in repetition and periodicity.

Tic: The facial twitchings of lethargica cannot be voluntarily reproduced.

The stupor and character of the temperature may suggest typhoid. This disease may be ruled out by the negative blood and stools and by the clinical course of the disease.

In cerebrospinal lues the paralyses are gradual and usually not preceeded by convulsions.. The involvement is not transient, with the involvement of certain centers one day and the improvement the next. The Wassermann tests are also a point in the differential diagnosis of the two diseases.

**Treatment**—This should be along supportive and sedative lines. The patient should be kept on a nourishing soft diet of high caloric value. In cases of complete coma, feeding should be through a stomach tube and by proctoclysis. The patient should be put at rest in a quiet, darkened room, preferably isolated. Dr. Albert A. Horner and others suggest a mild contagiousness of the disease. He also stresses the importance of hydrotherapy and keeps his fluid intake at not less than 180 c.c. per hour. Sponge baths should also be given at frequent intervals.

Medication consists of hexamthylamine grs.. V-X t. i. d. Iodides may also be given in small doses. Some clinicians have advocated the use of sodium cacodylate. There are no indications for salicylates, as these have little effect upon the pains of lethargica. Sodium bromide is the best sedative and should be given grs. X-XXX, morning and night.

If at the first lumbar puncture the fluid comes out with increased pressure, additional punctures should be resorted to every other day until the pressure is normal. The procedure often lessens the lethargy and extreme nervousness.

Dr. I. C. Brill reports improvement in four cases treated by auto-serum therapy. This procedure is as follows: 60-100 c.c. of the patient's blood is withdrawn under aseptic precautions. The serum and cells are separated by standing the blood in a cool place or by centrifugation. Spinal fluid of the patient is withdrawn by lumbar puncture and the amount of fluid measured. Half of this amount of the autogenous serum is introduced intraspinally through the lumbar needle.

W. M. Crofton, of Dublin, treats epidemic encephalitis with influenza antigens with favorable results.

Case 1. 2½ million pure influenza antigen —improvement—some reaction.

Case 2. Mixed antigen of B. of Pfeiffer, micrococcus flavus and streptococcus, 1¼ million each—improvement—no reaction.

Case 3. 5 million, 10 days apart, increasing each dose five million of influenza antigen for three doses—improvement—no reaction.

Case 4. At weekly intervals, 5, 7½, 10 million of pure influenza antigen. First two caused focal symptoms and drowsiness—improvement, and cure.

**Prognosis.**—In most cases this is favorable. The cases exhibiting high temperature with delirium, mania, and insomnia offer the least hope of recovery. The degree of lethargy may not be taken as an indication for the prognosis. In two cases with an apparent equal degree of lethargy, one made a complete uneventful recovery while the other died.

The mortality is quoted in England as about 26 per cent. In this country the mortality has not been this high. This may be due to the greater severity of the disease in England or to lack of its recognition when it first appeared there.

It is not considered as a fatal disease. The mortality depends largely on the early recognition of the symptoms and physical signs. In this way the severer complications may be avoided or aborted.

## DISCUSSION.

DR. W. J. BREEDING, Sparta: This is certainly on of the most interesting papers and one of the most interesting subjects that could be brought before the Association at this time.

Encephalitis lethargica is a new disease in this country, appearing here for the first time in 1918. We find that it is now distributed sporadically all over the States. It is regarded by our best authorities, especially by Dr. Simon Flexer, of New York, as an infectious disease, but if so, the infection manifests itself in a peculiar manner.

I have had within the past two years two cases within a stone's throw of each other. They are both mothers, and are of interest from the fact that they lived in an isolated valley and received water from the same spring. It was very rare that they would go out of this valley for any purpose. In the first case, the symptoms were non-toxic, but death closed the scene in five months. In the other case, the symptoms were that of profound toxemia, and she is now slowly recovering. There has been no possibility that we can see, why this first case should have received the infection, if it is an infectious disease. The interesting feature of this case, which can now be diagnosed post mortem as an undoubted case of encephalitis lethargica, is its non-toxic nature in contradistinction to the second case presenting all symptoms of toxemia.

Mrs. B., age 35, mother of one child, family history negative, began suddenly on January 21, 1921, to complain of pain in the muscles and joint structures of the left arm. The wrist, elbow, and shoulder joint became swollen and painful. This was co-incident with chilliness, fever and sweat, the periodicidity of which led us to make the quinine test for malaria without results. The temperature of 101 in the morning to 103 in the afternoon, accompanied by a drenching night sweat persisted for over four weeks, in spite of large doses of salicilates, which were given on the theory of articular rheumatism. A chain of enlarged lymph glands were found on the left side of the neck corresponding to the limb involved, but there was no focus of infection in evidence. Following these exaggerated septic or toxic symptoms the temperature became normal and subnormal, and so remained thruout. The symptoms at this time pointed unmistakably to a brain lesion. Lethargy became marked, persistent and profound. Ptosis of eyelids, blurred vision, marked muscular tremors, ataxia, rigidity of the muscles of the neck and an abnormal slowness of mental activity supervened. The eye symptoms were so manifest that Dr. A. F. Richards was asked to see the patient and assist in explaining the peculiar train of eye symptoms. The ophthalmoscope revealed only abnormal paleness of the retina, the eye structures being apparently otherwise normal. After the fifth week of illness, gentle, peaceful sleep seemed to have taken full possesion. She seemed to be cut off from the outside world and to exist in a placid wilderness of quietitude. No sensory stimuli from the special and other senses seemed to reach the cerebrum. She slept as if under the profound influence of an opiate, and after being aroused would fall asleep while we were making a physical examination. No pain, no delirium, not a muscular movement. When aroused her response to questions were always intelligent, but delivered in a very slow, deliberate and drawled out manner. There would often be an interval of minutes between the time of asking a question and receiving an answer. Her muscular movements became likewise very slow, 10 to 15 minutes being consumed in taking a drink of water. Her memory of the whereabouts of articles, both small and great, about the premises was something remarkable. As the stupor merged into a state of apparent coma, the muscles of the neck became very rigid, the head seemed to be fixed as in a vise, the lower jaw was drooped allowing saliva to trickle from the mouth continuously. The muscles of the lower limbs were also rigid, and the body would remain in any position in which it was placed, without a muscular movement, as if made of wax or clay. A symptom observed in this case (which I have not seen of record among other classical symptoms) was a reflex yawning produced by touching any part of the face or head. The slightest touch at any time would produce a long yawn, and we would take advantage of this to examine the mouth and throat. Strange as it may seem, this patient is now making a slow and uninterrupted recovery after over four months of serious illness. After being unable to swallow, she is now taking nourishment satisfactorily. After being unable to speak for three weeks, she is now slowly regaining her speech. After being unable to move a muscle, she is now able to take a few short steps. I felt that this case might be of some interest in connection with this paper.

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DR. W. K. SHEDDAN, Columbia: In reading reports of cases of encephalitis lethargica in the periodical literature, and the reports of cases detailed by men who have seen them, I am not seeing any reference made to the organism in connection with this disease, and the question rises in my mind whether there has been any definite organism found in these cases with any degree of regularity that would establish its identity as a cause. Dr. Litterer and other laboratory workers can probably answer that question. If so, I would like to know what the type of organism is. When we take the various reports we see in the periodical literature, and they have been full of it for the last year and a half, and compare them, they do not resemble the same condition in a great many instances. It seems to me, that practitioners are confusing a good many lethargic conditions and are not properly classifying their cases. Every practitioner feels that he must have at least half-dozen or a dozen cases, otherwise he is out of fashion. A great many cases are reported that are not true cases of encephalitis lethargica. I would like some of the laboratory workers to tell us if any definite organism has been found which has been looked upon as a specific cause for this particular condition. I am somewhat at a loss to recognize the cases as I see them reported, the differences in clinical characteristics, and differences in clinical history and the course of the disease in one case as compared with another, in order to make it the identical disease. It seems to me, we are confounding numerous conditions with one possibly that is rare.

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DR. OTIS S. WARR, Memphis: I think Dr. Turner is to be congratulated on the splendid essay he has given us on this interesting subject. I am sure those of us who have seen a few cases of this disease and have followed the literature of the subject have been impressed with the varied clinical manifestations of this remarkable disease. There is no disease with which I am familiar, unless it be syphilis, that gives us such a protean clinical symptom complex.

As to the relation of the disease to influenza, I think now practically every one who has observed many cases is convinced that there is no definite relation that can be traced between an attack of influenza and the onset of encephalitis.

I have seen up to date about fifteen cases, and I have yet to see a case in which there was a history of influenza.

As to the symptomatology, it is so varied in its manifestations that it is impossible in a short paper to describe it. Various authors have grouped the symptoms, and still we see cases that would not fit in accurately with any of the groups thus far described.

One of the interesting cases that came under my observation would be classified under the choreiform group. In this there was definite hemi-chorea in which a diagnosis of Sydenham chorea was made, and the patient was well before we came to realize that this was probably a case of encephalitis. In looking back over the records of the case, I am sure we were dealing with a case of encephalitis that gave us symptoms of a hemi-chorea typical of the Sydenham type.

We must be guarded in our prognosis of this disease. We have not followed our cases far enough to know what to expect as to the sequelae.

Recently I saw a patient who had this disease eighteen months, and still there were neurologic symptoms and signs that dated back accurately to this disease. It looked at this time as if the lesions might be permanent.

I am sure Dr. Turner would have said more in regard to the treatment of the disease if he had had time to do so. However, in a disease, we know so little about and so little as to the etiology, necessarily the treatment has been more or less empirical. So far as any drug therapy is concerned, I think those of us who have had any experience with it al all have been convinced of the uselessness of drugs. However, in the toxic cases, the cases that show the greatest amount of lethargy, routine lumbar puncture has given most satisfactory results, the lumbar puncture being repeated as the case may require. In two of our cases, lumbar puncture was done, and in a few hours the patient, after being in a deep lethargy, was able to recognize friends, members of the family; but in forty-eight hours lapsed back into a deep coma again. Another lumbar puncture was done, and we got exactly the same results.

I think the disease deserves careful study, and I am not willing to agree with Dr. Sheddan that we are likely to mislabel some of these diseases. On the other hand, because of our lack of knowledge of the disease, we are likely to overlook it and allow it to pass through our hands unrecognized..

DR. WILLIAM LITTERER, Nashville: I have enjoyed Dr. Turner's paper very much. Personally, I have not studied encephalitis lethargica from a bacteriological standpoint. However, I have been very much interested in reading reports by various authors on the subject. As to the question asked by Dr. Sheddan, will say that there has not been any uniformity by research workers as to its etiological factor.

Flexner has a most excellent article on this disease in the Journal A. M. A. about March, 1920. He believes that the disease is infectious, due to a micro-organism of some sort. The globoil bodies that are found in poliomyelitis have been described by Loewe, Hirshfeld and Strauss in cases of lethargic encephalitis, and are thought by these authors to be quite similar.

The disease was first recognized in Austria in 1890, extending over quite an area of territory. In this epidemic it was associated with epidemic influenza. Many csaes of encephalitis followed an influenza attack in this outbreak.

DR. SHEDDAN: I would like to ask if the pathological findings are uniform?

DR. LITTERER: They are suite uniform, in most instances. The histologic changes or lesions may be quite extensive. They are usually confined to the gray matter at the base of the brain, more particularly about the third ventricle, optic thalmus, pons and medulla. The spinal cord is variably involved. The lesions themselves consist of cellular aggregations about the blood vessels, cellular infiltrations in the nerve tissues themselves, small, often microscopic hemorrhages are also encountered.

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DR. CARROLL C. TURNER, Memphis (closing): I appreciate this discussion very much. Dr. Breeding's case report is most interesting.

In reference to the remarks of Dr. Sheddan, I attempted to bring out in my paper the point that the pathology may be distributed throughout the central nervous system; that it was not limited to say one portion; therefore, you can get any symptom of any nervous disease. The disease may simulate meningitis, poliomyelitis, tabes dorsalis, and other diseases.

The pathology, as Dr. Litterer has said, is very uniform, and is nearly always found in some portion of the brain. It may be distributed throughout the brain in general or in the medulla around the aqueduct of Sylvius in the floor of the fourth ventricle.

In regard to the treatment of this disease, I have not struck anything more than routine treatment, and that is supportive and sedative, and I agree with Dr. Warr that lumbar puncture is necessary, especially if the fluid should come out under pressure the first time. I think lumbar puncture should be resorted to as long as the pressure is increased. I think, however, every other day is sufficient for these lumbar punctures. It has been brought out that lumbar puncture may lower the resistance of the pia and arachnoid to the infection, whatever the infectious organism is, and thereby increase the meningeal symptoms.

Along other lines of treatment I will say that Brill reports cures in seven cases by the use of autogenous blood serum intraspinally, and his procedure is simply to withdraw the patient's blood, seperate the serum from the other elements, and withdraw the spinal fluid and introduce intraspinally half of the amount of autogenous or patient's serum to the spinal fluid removed. In other words, if 50 c.c. of spinal fluid is removed, 25 c.c. of autogenous serum is introduced. He gives considerable evidence to substantiate the good results he has obtained.

The English have tried influenza antigens and claim results from it, but inasmuch as we do not know that the bacillus of Pfeiffer is the sole etiological factor of influenza, and we do not know that this disease is the sequel of influenza, therefore, we do not know the rationale of this treatment.

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## PROTEIN SENSITIZATION IN VASOMOTOR RHINITIS.*

By J. J. Shea, M. D., Memphis.

The study of protein sensitization dates back to Majendie's work on egg albumin in 1839. Richit, Portier, Theobald Smith, Flexner and many other notable experimentors have studied the phenomena. The term anaphylaxis was coined to contrast it with prophylaxis. The modus operandi involves speculation. Briefly, it is produced by a combined action of the sympathetic nervous system and the endocrinal secretions, "from a state of hyper-sensitiveness that is due to the presence in certain tissues of specific anti-bodies, the symptoms of anaphylaxis being caused by the meeting of these antibodies with the respective antigens in these tissues." (Trice Medicine.) Where there is no antigen—antibody reaction the state is called "allergy." All antigens are not capable of producing this state of hypersensitiveness, and to those antigens so endowed is given the name "anaphylactogens." That the sympathetic system controls secretions and vasor motor action is firmly established, but the stimulation of its action is unknown. Experiments have shown that endocrinal secretions will alter this sympathetic action. Adrenalin will cause vasor motor constriction either locally or generally.

An animal may be immunized by inoculation with graduated doses of bacteria of virus to a state of prophylaxis against an infection of that germ. The same animal upon inoculation of graduated doses of a foreign protein may become sensitized to that protein, and further injections of that protein will produce anaphylaxis, or allergy. The pathology in the fatal cases varies according to the animal. In the guinea pig there is an asphyxia, brought about by a tetanic contraction of the bronchial musculature, which completely blocks the passage of air into or out of the lungs. In the rabbit there is a mechanical interruption of the blood circulation in the arterioles of the lungs. The dog dies from a stasis of the blood in the liver and the abdominal veins due to an obstruction of the portal circulation. In man the pathology has not been thoroughly worked out, but appears to have a combination of loss of control of the unstriped muscles. This failure gives proof to the theory that in man there cannot occur a true anaphylaxis from the action of antigen-antibody reaction. Another known fact is that there appears to be a limit to the amount of the antibodies in any animal, for if there occurs a reaction sufficient to consume the bulk of it, but not enough to kill the animal, a similar reaction cannot occur until the animal is again sensitized. That is, the sensitizing substance is expendable and by expending it in small amounts the animal can be desensitized.

Inspection of the nasal membrane in vasomotor rhinitis excludes the presences of any inflammatory condition. On the other hand, the pale, cyanotic oedema bespeaks a lack of the fighting reaction. If the membrane lining the lower respiratory tract could be studied during an asthmatic attack, it would appear the same. The phenomenon is not limited to these membranes, but may be observed wherever sympathetic nerve control can be studied. The pupil may be dilated by the direct action of horse serum on the eye of a sensitized rabbit. Dilation of the intra-ocular vessels with hemorrhages and oedema of the conjunctiva and lids accompany the more vigorous reactions.

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How does the protein enter the individual, and why this atypical reaction? The only answer to this is that at some previous date during the assimilation of the end products of digestion, they have retained their own characteristics and act as foreign protein. Maybe they were absorbed before the end stage of digestion had occurred. The system then produced anti-bodies for these native proteins, and upon each subsequent injection a fight is staged with an alteration of the endocrinal secretions which in turn disturb the action of the sympathetic system. Thus, anaphylaxis, or allergy is produced, and if the nasal membranes are mostly affected, we have a vasomotor rhinitis established, or if the respiratory membranes sustain the attack an asthma is present.

These cases are not confined to seasons, and changes of climate only partially influence them. The skin tests with the various food, drug, serum and bacterial proteins will separate them out. All of the cases are not severe, and many are overlooked. We all have worried over an inability to procure proper ventilation of a patient's nose or the permanent ventilation of the Eustachian tubes. Inspection fails to reveal any anatomical obstruction or inflammatory swelling, but still the patient can not be made comfortable. Many of these are mild cases of protein sensitization.

The sympathetic control of the nasal membrane occurs through the naso-palatine ganglion (Meckle's) and cocainization of this ganglion will reduce oedema of this tissue, proving the influence of the sympathetic over this phenomenon.

In the true hay fever cases, it may be the above condition which makes the membrane susceptible to the action of the pollen.

### Treatment.

The isolation of the offending protein is to be sought, and the subsequent desensitizing of the individual.

The tests as described by Squibb are as follows: Bare the forearm and wash the inner surface where application is to be made. Use sterile water or physiological salt solution only. (Do not use alcohol, ether, etc., which interfere with the delicacy of the reaction.)

Make a single scarification with a sterile needle, or use an instrument such as the von Pirquet "borer." Penetrate the outer layers of the skin only, care being taken not to draw the blood. Rub into the tissue at this spot the soluble food allergens, either in the form of the dry powder (with a drop of sterile water) or a 10 per cent solution in sterile water or physiological saline.

A series of scarifications and innoculations may be made at the same time.

When desired, a five hundredths to one per cent solution of the allergen may be prepared, as described, and injected intradermally with a tuberculin syringe and fine needle in doses of one hundredth to two hundredths cubic centimeter each. This is strictly an intracutaneous inoculation, and must not be confused with a subcutaneous injection which, in cases of hypersensitiveness, is sometimes hazardous.

When either technique is employed, controls with salt solution alone must be made by the same method for comparison.

The reaction by either the cutaneous or the intracutaneous method gives approximately the same results, though the intracutaneous is somewhat more delicate.

If hypersensitiveness to a given protein exists, there will appear about the site of inoculation a distinct urticarial wheal within five minutes to half an hour, often lasting for several hours.

If the protein cannot be isolated, two methods of attack may be chosen. First, stimulation of the endocrinal secretions by the administration of either thyroid glands or mixed glands tablets; or, based upon the idea that after all this could occur in a healthy nose, the administration of an autogenous vaccine made from the nasal flora. Under the endocrinal treatment I wish to recommend its application in the mild cases causing a blockage of the Eustachian tubes.

**Cast 1**—Miss I. W., age 32. Sneezing worse on Sunday afternoons. Examination: Nasal cavities well ventilated and drained; no contact points. Tonsils buried, but clean. The only food eaten on Sunday different from week day was corn bread, and in the skin tests a marked reaction was obtained to corn. Patient desensitized to corn and same eliminated from her diet. Subsequently an autogenous vaccine was used with good results. March 25. Returned, and no sensitization found.

**Case 2**—Mr. H., recurrent obstruction of nasal breathing, pale cyanotic oedematous membrane. Nasal septum deflected. A successful sub-mucous operation performed by Dr. Farrington, but with no relief of nasal blockage. Under adrenalin, blockage entirely removed, and no anatomical contact point found. X-ray of sinuses negative. Wassermann negative. Consultation by Dr. Beck, of Chicago, who concurred in the diagnosis of vaso-motor rhinitis. Unable to obtain sensitization of any protein, but under thyroid treatment, membrane regained its normal color and ventilation was re-established. Thyroid treatment stopped, the symptoms reappeared. Patient replaced on thyroid and a balanced ration and is progressing favorably.

**Case 3**—W. N., age 23. Persistent blockage of Eustachian tubes, which readily opened upon inflation, to close immediately. Tonsils chronically infected and removed. Nasal membrane of same puffy, cyanotic appearance. Under thyroid treatment membranes regained their normal color, and the Eustachian tubes became ventilated after a year of persistent closing.

**Case 4**—Mrs. B. Vasor motor rhinitis, which followed a hysterectomy. Condition cleared up under corpus luteum hypodermically.

### DR. SHEA'S PAPER DISCUSSED

Dr. H. E. Christenbery, Knoxville: Mr. Chairman, I am glad Dr. Shea has told you all about this. We are greatly at sea in regard to anaphylaxis and protein sensitization. If we knew just what anaphylaxis was, we might know more about it and be more able to discuss this important subject. We know that it is some cellular, or some fixed cellular anti-bodies, when the proteins antigen come in contact with them we have anaphylaxis, or hypersenssitiveness; but perhaps when we know more about the nervous system than we have yet found we will know just how it all comes about. Now Sanford, in Mayo's clinic, in some eight hundred cases that he has applied the protein test to in the last two years, over five hundred of them would show no reaction to protein sensitization whatever; one hundred of them showed some slight reaction, nothing definite, and about two hundred did show some definite reaction. Most of these seemed to be from horsehair or dandruff, and some from feathers and cat-hair and other things. Of the food proteins, it seems that the white of an egg caused more reaction than anything else. I do not think that we have enough time or can afford to take enough time, in our daily work to work this out with the various proteins that we have. I have only tried it on about eight cases, and I am sorry to say that I was not able to get any reaction. I think we should always look to the proper drainage and aeration of the nose in some of our cases which are commonly called hay fever and asthma which are not true hay fever and asthma, we can relieve a great many of them in that way, by getting proper drainage and aeration. The age and locality and infection have so much to do with these cases that have hay fever and asthma that we ought to always look into that. Walker has done rather an extensive study and research in that, and he gives us some very valuable stuff. I do not remember who makes the statement, but the statement is made that four-fifths of those patients who began asthma during infancy were sensitive. Two-thirds of those who began during childhood were sensitive. One-half of those beginning in young adult life were sensitive. One-fourth of those beginning in adult life were sensitive. None were sensitive who began to show asthma after 50 years of age.

As I said, the locality and surroundings should be taken into consderation in order to relieve our patients who suffer with hay fever and asthma. A change will many times be a great benefit. Probably a few have had some good results from the pollen vaccines and some I could not say so much for. We have about the same amount of results apparently from any other line of treatment we use. I think we should not depend alone on the pollen vaccines; but many times we can relieve these patients by beginning along early, in June or July, and giving them injections now in small doses on up to the height of the season, and then begin with the bacteria vaccines and carry them through. Many times we can cut the duration of the attack short. Do that as a matter of treatment. But I must confess that as the protein sensitization I know nothing about it, and realize, in an attempt to discuss it, that it is yet a great study for us; and I thank Dr. Shea for giving us what he has in such an able manner on this important subject.

Dr. F. E. Hasty, Nashville: Mr. Chairman, I think this is a very fine paper. It brings before us a most interesting study, and at a very opportune time. Considerable research work is being done along this line, and it seems that some comparatively definite information is being obtained.

It strikes me that one of the most important things to do in a case of suspected hay fever is to first eliminate possibilities of any real pathology in the nose or paranasal sinuses. This done a careful history should be obtained as to what time of the year the first attack occurred. This alone is oftentimes very suggestive of what group of pollens the patient is suffering from. In determining the exact pollen or positive agent, a proper technic should be very carefully observed. I think that perhaps the most frequent source of error comes in the sodium hydroxide solution, which may easily disturb the reaction by being too strong. It is perhaps safer to use sterile water or a normal saline solution.

In observing and assisting in caring for a large number of hay fever and asthma patients while on the house staff at Manhattan Eye, Ear, Nose and Throat Hospital, I tried particularly to determine from a clinical standpoint why people who had lived under the same environment for a number of years without any trouble would suddenly develop hay fever. Just as Dr. Shea has suggested, I think without hardly an exception these patients gave a history of having had some debilitating condition immediately preceding the initial attack of hay fever.

I should like to sound a note of warning with regard to the time of treatment and the dosage during treatment. The prophylactic treatment should be started at least three months in advance of the time of the usual attack. Treatment started during an attack is likely to not give satisfactory results. The dosage should be increased very carefully, otherwise a considerable anaphylactic shock may be produced. In fact, this shock is sometimes so severe that the patient's life is seriously endangered as a result. Adrenalin and a second sterile hypodermic syringe should always be at hand, and the patient should be observed for fifteen or twenty minutes after each injection.

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Dr. H. H. Martin, Savannah, Ga. Mr. Chairman: To me this is the most interesting subject that I have ever heard here in the last two days, and the way Dr. Shea has presented it to us, gives to me a more clearly defined idea, and perhaps a better understanding of some experiences I have had in my work. He spoke more particularly of vasomotor rhinitis than he did of hay fever. The other gentlemen who have spoken seem to have dwelt more on hay fever and asthma. Dr. Shea spoke more particularly of vasomotor rhinitis attributed to food proteins; he also went into the laboratory tests. It is not altogether necessary that we should all become adepts in applying tests and all that. I have found in my practice that a great many of these cases which Dr. Shea described as vasomotor rhinitis without inflammation; you remember he impressed that, without inflammation, the non-inflammatory type, these pale, cyanotic looking mucous membranes that you see, with difficulty in breathing, and constant dripping, and sneezing, I follow the plan of asking this patient what he eats for breakfast, what he eats for dinner, and what he eats for supper, and if he is in the habit of having lunches between times, and put all those things down and keep records of them, and I make him quit eating certain things, one at a time, and in a great many cases I have been able to detect the criminal; and I have been astonished at the number of times that it has been eggs. And then I have cut out this, and I have cut out that, without any improvement at all, and in many cases would put the patient on bread and milk for a while, and then go back and start the patient over again and find the guilty food product that this patient was taking into his stomach. It seems to have nothing to do with outside contacts, no pollen or disease germ that gets on this membrane; it is a vasomotor disturbance that is caused by protein poison, and the protein poison can be detected without going into technical tests which Dr. Hasty has warned you are sometimes extremely dangerous. You can often by elimination of certain food products each day find out which one is causing the trouble.

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Dr. Louis Levy, Memphis. Mr. Chairman and Gentlemen: I have been working along these lines for several years, paying particular attention only to types of hay fever, rose fever, or the all year round kind. When it comes to asthmatic type from the food proteins, or from the endocrine secretions, I have usually worked in conjunction with the internist, who, I believe, is more capable of handling these.

With respect to the selection of cases, I think this is one of the things we do not do; the patient usually selects us, because they are coming up for definite trouble. There is one thing we must be perfectly sure of, and that is, in testing that the pollen we are dealing with are O. K. Before I could get the individual pollen I used the mixed type, which, no doubt, all of you have used. I must say that I seemed to get fairly good results, yet was not satisfied as it reminded me too much of a shotgun prescription.

However, with the work I have done recently with the individual pollen I have gotten better results; the only thing you must be definite about, as said a moment ago, is that if you have two different families of pollen you must inject, both, not at the same time, as is sometimes done, but at different times.

With reference to the endocrine secretions, my attention was first called to this by a member of my family, who, while my patient had typical symptoms of vasomotor rhinitis, sneezing and weeping right on to cold weather and continuing even after frost, so that the cool weather did not check the condition. Nose and sinuses were O. K. Eighteen months ago she gave birth to a baby, she has not had a sign of trouble since. There is no doubt in my mind that this was a case due to imperfect endocrine secretion, but just what was playing the part I never did find out. In regard to the asthmatic type, about three years ago I was called to see a child, then about four years old. Upon examination I could find nothing special, his tonsils being small but some adenoid. I advised his physician to try out the food proteins as I thought from the history this would show the cause, but his physician insisted that it was due to the adenoid and tonsils and that they be removed. Removal of same did not improve child and later parents took him to Chicago, where the pediatrician agreed with me as regards the food. Patient has since returned and now on a proper diet has had no more trouble. This will also illustrate the need of being more careful in our promiscuous removal of adenoid and tonsils for the cure of asthma, though patients and doctors insist upon same, when in our judgement we realize it will not benefit.

It is only to endorse what Dr. Shea has said that I have gotten up here. My experience, even though of five years duration, is short, and I feel that I have not gone far enough into the matter to give detailed report, except to say to you that you must try to do something for these patients. All of you heard the excellent paper on tinnitus this morning, as a distressing condition; yet this condition at the time is far worse than tinnitus to any patient.

Dr. J. J. Shea, Memphis. (Closing Discussion.) Mr. President and Gentlemen: The subject has been covered very thoroughly in the discussion, and I thank you for it.

The cases that I have had the most success with are the patiets who come in and complain of sneezing. I think if the title of the paper were "Sneezing" it would cover it just about as well.

## THE INDICATIONS FOR TONSILLECTOMY AND ITS END RESULTS.*

M. M. Cullom, M. D., Nashville.

The subject assigned me by the Chairman was "The End Results of Tonsillectomy," but I have taken the liberty of expanding the subject somewhat as the end results will depend in large measure upon the accuracy with which the indications for tonsillectomy are recognized. Within the last few years the literature of medicine has been largely rewritten. The volumes we conned so laboriously as students are taking their place with forgotten lore and modern medicine is another thing entirely. How fortunate is the student of today who does not have to learn all the things that we old fellows have to forget! Nearly all conditions and the most successful physician is he who is most expert at locating a focus of pus in the body. It is this phase of modern medicine which has brought the ear, nose and throat man into close affiliation with all branches of medicine and has caused practitioners of every line to avail themselves of his skill.

We older men have lived to see the indications for tonsillectomy expand from the simple one of mechanical obstruction to the hydra-headed monster which masks under the name of focal infection. In the nineteenth century, mechanical obstruction was blamed for the ill health which was observed to be associated with diseased tonsils, and thus we can account for the mental attitude which advocated amputating that portion of the tonsil which projected beyond the pillars.

Sir Felix Semon claimed that the digestive trouble which had been noted in persons with enlarged tonsils was due to lack of proper oxygenation from the obstruction to respiration by the enlarged tonsils. But even at that time men were beginning to grasp the theory of focal infection, for Bosworth in 1892 commenting on this statement of Simon's did not argue with it, but said that he believed it due to the pus and decomposed detritus expelled from the tonsils and swept into the stomach by the act of swallowing. He also said that in view of the fact that the portion of the tonsil left behind was as diseased as the portion removed, he believed that the tonsil should be as thoroughly extirpated as possible. It was his intention to remove the tonsil completely, but seemed to recognize his inability to do so in all cases. There is one type of tonsil to which I wish to call your attention particularly, namely, the harmless appearing tonsil. It is the tonsil which is merely glanced at and give a clean bill of health for the following reasons. The patient when questioned, says, "I have never had an attack of tonsillitis in my life, my tonsils do not give me the slightest trouble; I would not know from any disturbance they cause that I have any tonsils." Most internists and many throat men consider the case against the tonsil closed at this point and give it no further consideration as a source of infection. For this reason, the cause of toxemia is overlooked, and the patient passed from one branch of medicine to another in a vain effort to relieve the condition. Many of the cases would be uncovered if the anterior pillar were drawn back with a suitable instrument and pressure made upon the tonsil. Pus in varying quantities can often be expressed from tonsils of this type but not always. Sometimes the most painstaking examination will not disclose the presence of pus. In such a case a most careful examination should be made to locate the focus in some other part of the body. If we are reasonably sure that a focus of infection is responsible for the patient's illness, and also if we have excluded all the foci, we are justified in advising the removal of the patient's tonsils on suspicion. It is surprising how often in such cases a concealed abscess is found. It is also surprising how divided the profession is upon this type of cases. A man of international reputation told me that he had never removed a tonsil which contained an abscess, and many well known men have said that they have seen very few such cases. The reason I think is obvious. They are not impressed with the fact that such conditions exist, and therefore do not recommend operation in such cases. A careful study of cases of chronic toxemia will locate the cause many times in a harmless looking tonsil. A general surgeon, who is by nature an agnostic, told me that I had demonstrated this condition to him so many times that he had become thoroughly converted to this belief.

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*Read before Section on Ophthalmology and Otolaryngology at Annual meeting of Tennessee State Medical Association at Nashville, April, 1921.

Let us consider for a moment the type of cases we find associated with the harmless looking tonsil. Perhaps the most outstanding symptom of the toxic condition is nervousness. Chronic poisoning from a pus focus reacts upon patients in many different ways. In children who have less control over the nervous system, it may take the form of involuntary movements, muscular twitching, habit spasms, and we have some form of chorea. I have had many children brought to me with the habit spasm which takes the form of involuntary contraction of the lids. They are always under the impression that the winking is the result of eye strain. They come sometimes with the history of having had glasses fitted by a number of different men with no relief. I have invariably found a focus of infection of some kind. Generally these cases have no error of refraction or else a trifling one.

In the case of adults who have more self-control, the infection takes the form of intense nervousness, and this class of patient brings many a gray hair to the head of the general practitioner. They are often passed from one branch of medicine to another, and in the old days before accuracy of diagnosis was general contributed many an ovary, and had many a floating kidney and uterus suspended, to say nothing of other trimmings.

Another condition which should arouse our immediate suspicions is a patient who complains of stomach trouble. Here the connection between stomach trouble and diseased tonsils is so direct, that it attracted the attention of the fathers years ago, as I have noted above, but I am afraid we have not learned our lesson as thoroughly as we should. How often do we see patients who are on restricted diet, who suffer abdominal distress after the ingestion of food who have unmistakably diseased tonsils. I dare say that very few of us were impressed with the condition a dozen years ago when we began to enucleate tonsils, but it was forced upon us by the numbers of patients who reported to us a year or two after having tonsils removed that stomach troubles had disappeared, which neither we nor they had thought had any connection with diseased tonsils. With this fact thoroughly established, how important it is for every patient suffering from digestive disturbances to have almost painstaking examination for a possible focus of pus in the tonsils, teeth or sinuses. A third class of cases who are frequently overlooked are those suffering with goitre. I had noted the fact a few years ago that an acute attack of tonsillitis is sometimes followed by the enlargement of the thyroid gland.

While on a visit to the Mayo Clinic, I was witnessing a goitre operation by one of the surgeons. I asked him if he had noticed any connection between diseased tonsils and the enlarged thyroid. He said, "We have noticed this connection. A patient would come with a goitre and all the symptoms of hyperthyroidism. We would ligate the vessels, the goitre would disappear and the symptoms would subside. Then the patient would have an acute attack of tonsillitis and the whole thing would light up again, the thyroid would enlarge and the symptoms of hyperthyroidism would recur. This has happened so often that we have come to believe that diseased tonsils play the chief role in hyperthyroidism."

These three classes of cases were the ones I wished to draw attention to as being the ones most frequently overlooked. I have written before at considerable length upon the connection between eye disease and focal infection, and will pass that over, and there is another class of cases which we cannot afford to overlook, and that is patients suffering from nephritis. The connection between diseased tonsils and heart lesions is well known and needs no comment here, but I am convinced that the importance of searching for a focus in the throat in cases of nephritis is not sufficiently impressed upon the profession. How often is the brief history of a case summed up, first a streptococcus infection in the throat, next an ulcerative endocarditis, then nephritis followed by death. Sometimes the endocarditis heals, but the nephritis goes marching on.

As you see, I have practically consumed my time, and have said nothing about the end results of tonsillectomy yet. I have this to say, that if you carefully and conscientiously pick your cases and operate only when the operation is indicated, the end results will take care of themselves.

I will briefly summarize a few cases which occur to me as illustrative of the conditions I have outlined.

A man of means had been more or less of an invalid for years. He had consulted many men of prominence in this country and had made two trips to Europe to consult specialists. He lived on soup, milk, and crackers. His stomach was the despair of medicine and likewise its financial stay. For five years I advised the removal of his tonsils, but he demurred because he had never had tonsillitis. When he finally consented, I found a pair of tonsils filled with foul pus. I told him he could not expect to see very much result from his operation under a year, for it is my experience that it takes as long as that to eliminate the accumulated poison. At the end of two years he is the picture of health, and a refreshing sight is to see him order a man's meal and enjoy it.

An interesting case to me was a young lady who filled a clerical position in one of the hospitals. My observation of her case extended over several years. I first noticed a condition of nervousness, then the development of goitre with the symptoms of hyperthyroidism. Her nervousness became extreme, her color and general appearance toxic. For two or three years I advised the removal of her tonsils. But the very condition of nervous apprehension under which she labored made her decline anything which savored of an operation. About a year ago I removed her tonsils.. Her goitre has dissappeared, she has regained normal weight, her nervousness has gone, her color is good, and she is full of vitality, designated by the low-browed as "pep."

If you will bear with me, I would like to relate the most remarkable case I have ever had. Captain A, the oldest passenger conductor on the L. & N. Railroad, aged fifty-seven, was referred to me by Doctor W. B. Anderson for the removal of his tonsils. He limped painfully into the room, leaning on a cane. His color was a sickly greenish yellow, and his feebleness gave him the appearance of a man of eighty. Without even questioning him, I went to the telephone and called Dr. Anderson and said, "I think you have sent me a dead man to operate on." He looked to me in the last stage of Bright's. Dr. Anderson replied that he had no nephritis, and that he could find nothing wrong except his rheumatism and his bad tonsils. I returned to the room and examined the patient and found him suffering from general rheumatism. His right knee was swollen to twice its normal size. I found that he had given up work seven months before because his hands were so swollen and so sore that he could not use his punch. He told me frankly that he had been given up to die by his family and friends. He had a tonsillotomy performed at the age of seven by that prince of surgeons, Dr. Paul F. Eve, Sr.

I removed his tonsils under a local anesthetic, and he returned home. Eight days later he returned to my office. I did not recognize him. He looked ten years younger. He stepped nimbly into the center of the room and said, "Doctor, I want to show you what I can do." He kicked with his lame leg as high as his head. The week following he returned to his work, and has not missed a day since. At the time of operation he weighed 120 pounds. At the present time he weighs 183.

The end results of tonsillectomy meet us at every turn. Children that were pallid, listless, undernourished, underdeveloped physically and mentally have grown into rosy cheeked, happy beings, full of energy and vitality. We see the same thing duplicated in adults. If the end results of our other operations were only as satisfactory as the end results of tonsillectomy, how pleasant would be the pursuits of surgery!

When I began tonsil surgery, our operations were confined mostly to children. There was a general impression that the tonsil operation on the adult was both dangerous and unsatisfactory. Now it is my belief that adults suffer from their tonsils far more than children, and the older they are the more they are injured. The longer a diseased tonsil is carried, the more degenerate it becomes, and the more it poisons the patient. Another factor that works against adults is the fact that the older the person, the more faulty the elimination, and the less able he is to care for the poisons excreted in his system. For this reason we cannot look for improvement in the adult after tonsillectomy as qickly as in the case of a child. In the case of an adult who has been the victim of chronic poisoning for years the maximum of improvement will not be reached under several years, depending upon the age and activity of elimination. On this account the credit for improvement is very liable to be given to something else. Such a patient is very liable to say. "I had my tonsils removed, but it didn't do any good. I went to the springs last summer and it made a new man of me." The point is if you examine these patients several years after operation, you generally find them in good health, whether they attribute their improvement to a trip, "Christian Science," the chiropractor or what not.

So that in adult toxic cases you cannot look for the maximum end results in a month, or six months, a year or two years. The important point is first a carefully made, conscientious diagnosis followed by a thorough, clean operation, and we can trust the end results to take care of themselves.

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## DISCUSSION.

Dr. J. J. Shea, Memphis:

Mr. Chairman, I do not think that a paper as cleverly written as Dr. Cullom's paper should go by without saying a word of praise in its behalf. His views are commonly accepted. There are some who are skeptical in regard to their results, and I think there are none who are any more skeptical than our Chairman, because he is after me day in and day out, week in and week out, on the question, that it may be we are too radical in the other direction. The tonsil that is really the fooler is the tonsil that looks doubtful to you, as Dr. Cullom says, and I think the best result in the vast number that have been in our office in the past five or six years have been cases where the examination was doubtful as to whether you would convict the tonsil. Really, the expression given to the patient would be, "Now if nothing can be found, I suggest to you that you have your tonsils taken out." It is not the case that comes in with the history, "Doctor, I have been having repeated attacks of tonsilitis." That person had had a fight in his tonsil, has built up an immunity there, and it has been a local disease. The type of tonsil that is a focus and the one in which you have to express an opinion is the one in which the infection has passed through the tonsil as a tubercular bacillus might come through the same system, and produce no local manifestation, but become a systemic disease; the examination of this tonsil is that it is apparently an innocent organ, but its removal is blessed with relief of the symptoms for which the patient seeks treatment. Another thing is that certain diseased tonsils require a tonsillectomy, and as long as the tonsil is left in this same infection will recur. And under this classification comes our friend Vincent's Disease of the tonsil. A tonsil once infected with Vincent's will recur. We were taught that lesson very thoroughly in France among the troops. If the tonsil was once infected, as soon as the lesions were celansed sufficiently not to fear any infection of your field the tonsil had to be removed. The tonsil is like an Indian, the really safe one is the one in a bottle. (Applause and laughter.)

Dr. S. M. Herron, Jackson, Tenn. Mr. Chairman: I would like to report two cases of hyperthyroidism. Both of these cases were examined by internists, and both of them had symptoms of hyperthyroidism, enlargement. One case had had a tonsillotomy at the age of nine. I got this case at the age of eighteen, and I removed those tonsils over a year ago, and the patient has never had an enlargement of the neck since, no symptoms of hyperthyroidism. The second patient, I removed the tonsil. She had never had a previous operation for tonsils. Her symptoms have entirely subsided. Two other cases of interest that I have removed tonsils for are two boys, one eight and one eleven. Both of these boys came to me to have their tonsils removed, and I examined the boys and found them both running temperatures, and of course I hesitated to remove the tonsils, and sent them to an internist, and he examined the blood, and found no malaria. He gave them cathartics and put them on internal treatment. I hesitated to remove the tonsils of those boys, because I was afraid of tubercular trouble, or possibly a nephritis that we had not found; and I kept these boys under treatment for thirteen months, trying to find some other cause for this little temperature that ran mostly in the afternoon. About six months ago I removed both tonsils from both cases, and those boys have never had any return of temperature, and the symptoms have entirely subsided, and they are regaining in weight and health every day.

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Dr. H. H. Martin, Savannah, Ga. Mr. Chairman and Gentlemen: You all know a tonsil discussion is interminable, if it is once started you don't know just where you are going to get off, but on behalf of the visiting doctors, I just want to add a word of approval and agreement with the conservative paper presented by Dr. Cullom. There can be no question to the observant practitioner that a great many of what were formerly called idiopathic diseases have definite causes. We are coming more and more to realize that every day, and whether or not we find as many diseases yield to the removal of the tonsils as some enthusiasts claim, is beside the question. As Dr. Simpson has said; as far as we know the tonsil is a useless organ, and if you are in doubt and can not locate the trouble elsewhere, no great harm is done by taking out a tonsil, and in many cases there are good results from it. In children, my observation has been that the weak and undeveloped child without definite lesion otherwise demonstrable will always improve in health and strength and weight after the removal of the tonsils. In connection with hyperthyroidism, I have seen a good many cases of hyperthyroidism improve in a most astounding manner after tonsillectomy. The indiscriminate reporting of cases is not very interesting, as a rule, but so many interesting cases have been mentioned here tonight, I want to mention one of Jacksonian epilepsy. A young man eighteen years old, employed in the office of his father, the superintendent of a railroad, had been carried to some of the best neurologists of the country, and the disease had been definitely classed as epillepsy, and his father had been told that there was no cure for it whatever. When the young man was brought to me, I think Wilmer, perhaps, in Washington, or some one, had told him that so long as this young man's refraction was properly corrected, he would not have so many attacks but would have them at times. In the course of refraction, he said to me, "Doctor, I wonder if throat trouble could have anything to do with my Jacksonian epilepsy?" In looking at his throat I discovered the type of tonsil Dr. Cullom described to you. On casual inspection, it appeared to be innocent, but on lifting the pillar I found fibrous bands running through the tonsil, and on expression would get cheesy matter and on eversion, or uncovering, a large oblong cyst; it looked to be a cyst, it didn't appear to be pus at all, and I found the same condition on the other side; I told this young man that the tonsil should be removed, because of the local condition, not because of the epilepsy. He agreed very readily. That was as long ago as 1906 or 1907, when we were only beginning tonsillectomy. I was fortunate enough in this case to enucleate the tonsils with my finger, didn't use a snare or an instrument of any kind, but enucleated with my finger, the tonsil came out clean, and left a beautiful, clean cavity; I kept in correspondence with this young man from 1906 to 1915, and he had not had a Jacksonian attack during that time. This is a very convincing case. We come in contact with them almost daily.

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Dr. John Green, Jr., St. Louis, Mo. Dr. Simpson alluded to an opinion expressed by Dr. Dean. I believe, that many cases of arthritis in children are due to tonsillar infections But I should like to direct your attention to the fact that in congenital syphilis the Hutchinson trida of symptoms, nerve deafness, an interstitial keratitis, and misshapen teeth there is often a fourth sign, namely arthritis. In the orthopoedic Clinic at Washington University, many cases of arthritis in children show symptoms of syphilis and have a positive Wassermann.

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Dr. Louis Levy, Memphis, Tenn. Just a word as regards the indications. I don't know whether it is out of my own mind or whether I read it somewhere, but upon examination you often see small innocent looking tonsils and yet lose sight of the fact that around the pillars you have that dark red area, which in itself is suggestive of a low grade inflammation within the tissue. To my mind this indicates a cause for removal and upon removal you will find this type of tonsil, the buried type as a rule, one of the causes of the focal infection.

Dr. F. E. Hasty, Nashville. Mr. Chairman: I would like to say a word with regard to syphilis complicated by focal infection. A considerable number of the cases which do not respond to anti-syphilitic treatment will very promptly clear up after diseased tonsils or abscessed teeth have been removed, the anti-syphilitic treatment, of course, being continued.

Another thing that I think it is important to remember in connection with these cases of focal infection due to diseased tonsils in which we do not get a satisfactory result is that a small piece of tonsil may be left at the base; also that there may be considerable hypertrophy and disease of the lympoid tissue on the base of the tongue. A certain number of these cases will promptly clear up when this tissue is removed.

Dr. H. E. Christenbery, Knoxville, Tenn. Mr. Chairman and Gentlemen: We ought to always look into the naso-pharynx of the adults, which many times I fear that we do not, because we find quite a bit of adenoid tissue that we can get some infection from too, in our adult cases. We all have various cases to report, and I would like to mention a couple of cases I had recently that have been advised to be operated on for appendicitis. One of these cases just a short time ago, a girl eight years old, that had five physicians with her, the last one as a physician and surgeon, and he recommended to hurry her to the hospital and remove her appendix; because she had digestive disturbance, and pain in the abdomen. As I had some time before advised the enucleation of the tonsils, the mother brought the child in to me, and I enucleated the tonsils. She has not had any trouble with her appendix, and her digestive trouble cleared up. Some time ago I had the case of an adult that cleared up likewise. So, there are so many of these apparently foreign symptoms from the tonsils that will clear up. No doubt we all who are doing this work are very enthusiastic about it, but we must be careful and conservative, and be practically sure that they are the cause, and not remove any tonsils that we do not feel like are clearly indicated. If we do this I do not see how we will overstep it. However, I have the patients that I did advise or tell them that as far as I could see they did not have any indications for removing the tonsils, any local indication any way, and within a week or two they would come in with an attack of tonsilitis; so there we are!

Dr. M. M. Cullom, Nashville (Closing the discussion). Mr. Chairman, I can not add anything to the very effective discussions which you have accorded my paper.

It is hardly fair to bring in other cases now, but I think of three cases of high blood-pressure in old people that have fairly cleared up as a result of tonsillectomy. I recall two of them because I spent a day and a night with them trying to control the bleeding, and I have reason to remember those cases and to remember their high blood pressure. Two of those cases were sixty years of age, and that was about two years ago and they are now in good health, with normal blood pressure.

Another case was that of a man seventy years old, who had a blood pressure of 235 when I operated on him. His blod pressure has dropped to 170 and he is in splendid health and doing as much work as anybody. He had practically had to give up his work.

But the case that I operated on today is a good case. That woman is fifty-seven years old, and her husband, who was a physician, told me that since he had known her there had not been three weeks of that time that she was not complaining of something; and as you could see, she was of a highly nervous type, and you could see that she was not in good health. Now when I took hold of that right tonsil today, it broke into a very foul abscess. I noticed a bad odor about her breath before I started operating, but when I got hold of the right tonsil, it broke into an abscess that had at least half a drachm of foul pus in it. That is a case of those tonsils that do not attract attention. In all probability your woman will be two or three years in getting the maximum of her benefit, but I believe that she will ultimately regain good health and be relieved of a great many of the troubles that she is suffering from now.

I thank you Mr. Chairman and gentlemen.

## COCK-SURENESS IN THE PRACTICE OF MEDICINE.*

By L. A. McSwain, M. D., Paris, Tenn.

In presenting this paper the writer feels that the definition as given in the dictionaries is not quite an index to the intent and purpose of the paper. The definition as we find it in the lexicons refers primarily to a cock, perhaps a cock turkey, who struts around as though he was superior to other fowls of the barn-yard, and was very sure of his position. We would like to add, as the term refers to individuals, "one who is so extremely positive of an opinion as to bar any sort of opposition or adverse assertion or negation or criticism. One who emphasizes a statement with a thud of fist on table or thigh, half profanely remarking, 'B' gosh, I am right.' " Cock-sure and determined in his belief as being incontrovertible. The writer has seen and heard anl felt something of the force of this absolutism in men, women and events for more than a half century in the practice of medicine, as well as elsewhere in the pursuits and professions of life.

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*Read at the Annual Meeting of Tennessee State Medical Association at Nashville, by I. A. McSwain, M. D., Paris, April, 1921.

In our profession there are two sides to the question. To be positive and even to assert it is commendable, provided the facts as proven are sufficient to warrant it; but to be "cock-sure" without evidence is, to say the least, deplorable and should be condemned. The one results from careful and painstaking investigation and is founded on TRUTH. The other is mere assumption, and most often is based on ERROR. The first carries with it a **conscience**; the latter a reckless disregard of consequences. Honest conviction in the practice of medicine, the result of truths ascertained by careful investigation, by the use of instruments of precision, careful physical examination and laboratory experimentation, may lead to positive opinion, and therefore to justifiable assertion and to scientific treatment of disease. We say "may lead," advisedly and with some reservation, for after all aids to diagnosis have been brought to bear, there are or may be still uncertainties in some cases. The cock-sure practician, however, as we have found him, does not rely so much upon such methods as indicated above. He does not need them. His instinctive insight is so acute, his intuition so perfect, that one may well stand in awe of him as having within himself somewhere the elements of a super-man. He it is who lays his hands on a woman's abdomen and immediately exclaims to the astonished audience, "Why this is plainly a case of ovarian neuralgia" and having "asserted" his diagnosis (?) proceeds with the treatment, Or perchance, he looks at the tongue, feels the pulse bears down on the epigastrium, and at once gives utterance to the startling statement "You are as bilious as you can be," or "You have stomach trouble and I can cure you," and whereupon writes down his prescription for Hydrarg. Chlor. Mite. filling the wondering patient's mind with new visions and his stomach with one of the oldest and most abused remedies—to wit, calomel.

Or again, he is called to one who is suffering with abdominal pain, and perhaps nausea, and tapping the lower part of the human anatomy with his tapering finger, boldly asserts "appendicitis." We are not here to say that his case was NOT appendicitis, but are going to say that he did NOT know, his asservations to the contrary notwithstanding, for we have proofs from information and belief (as the lawyers say) that the most gifted diagnostician, even among those who have to do with such cases day after day, and after all methods known have been used in making up an opinion, yet have cases that apparently were those of appendicitis, but which have by dissections on the living and the dead, proven to have been something other than mere appendicitis; such, for instance, as gall-stones, kidney stones, diseased ovaries, pus tubes, malignancy, tuberculosis, constipation or an overload of cabbages.

But all honor to the physician or surgeon, who, after exhausting all means to arrive at truth, proceeds with his treatment, surgical or otherwise. If **he** has made a mistake, he is entirely excusable, both in the minds of patient and public, and, above all, of his Creator. But our cock-sure man, who KNOWS without investigation and who takes the responsibilities of the life and well-being of his patient in his hands, even if the patient recovers, is unworthy of confidence, and if he should die, his physician is to say the least, chargeable with ignorance, if not with criminal negligence, and so far as our limited knowledge penetrates through the mists and fog of human environment, he will be held to an account in some other realm within the range of the Infinite.

Failure on the part of a physician to use all means at his command to ascertain the pathology of a case is reprehensible. That time when physicians could get on with shallow methods and with more or less indifference has passed, for after we have used all measures, there is still room for uncertainty in many cases sufficient to incite us to new and renewed methods of observation.

We do not want to appear before this distinguished body of gentlemen, representing as you do the highest types of medical men, as being hypercritical. This effort may seem to some of you as taking up valuable time with not sufficient cause for so doing, but residing as I have done much of my professional life of over fifty years in the country, removed from medical centers of men more advanced in medicine and surgery, I confess to a feeling of alarm for the safety of men and women and children who of necessity must depend on a doctor who looks casually into a throat and pronounces, "Sore throat and tonsillitis," while at the same time an exudate clings to the parts; and who, without microscopical examination treats the case with mops and gargles, and after a struggle of a few days, the child is dead with diphtheria; or asserts that a case of croup is a "bad cold" and prescribes a useless and inert, semi-patent medicine known as "calcedine," while a diphtheritic membrane is at that moment forming in the larynx and trachea which calls loudly for heroic doses of antitoxin, while every hour adds to the imminent danger if it is not used. Or perhaps a subject has a cough, fever, loss of weight, indigestion, rales to be heard in chest, and our cock-sure doctor, with none except the most superficial examination, asserts that he, she or it has "taken cold," and with his positiveness deludes the victim of tuberculosis for days and months until it is too late.

But perhaps in no other field is our cock-sure doctor so well calculated to deceive both himself and patient as in the realm of gynecology. The organs of generation are hidden away from ordinary observation, and he may make bold his assertions without fear of discovery so long as his absolutism can hold the confidence of his patient. Therefore, she has "the whites" or "falling of the womb" or he uses a larger word—"metrorrhagia." He proceeds to "wash out the whites," gives ergot for the bleeding, and tells her that he will "put the womb back in place," and afterward he places somewhere within the parts, a pessary in order to "straighten up" the womb. She may have, or have had, gonorrhea, or carcinoma, or fibroids, or pus tubes, or rents in cervix or perineum, but **he knows,** and therefore the woman, like the one mentioned in the Bible, must "suffer many things" from her physician, and quite likely will be nothing better, and only worse. But he is on the ground floor and is mighty hard to dislodge. Fact is, she had rather believe him than the scientific man who might find gonococci, cancer cells, or other conditions, which nothing in the wide world could relieve, save the the most careful surgical procedures.

We knew this man, this cock-sure man, to say most positively that he, although a popular midwife for many years and with large practice, that he had never had a case of a torn perineum! Shades of Hyppocrates protect us!

The man of whom we speak usually denounces surgeons as fakirs, laboratories as fee grabbers, and careful practitioners as fellows who "don't know" because of the fact they don't propose to cure everything, while he is most positive that he can and will cure.

It is useless to state here that the principle of cock-suredness is that upon which the patent medicine man, the quack, the charlatan, the osteopath, the chiropractic (whatever he is), the Christian science, (so called) healers ply their vocations, and that multitudes follow them, for sick people and especially the ignorant and superstitious, and stranger still, many intelligent people in other lines, are attracted by the mysticisms which have in all ages adhered to medicine, and more especially on account of the bold and consciousless promises held out by all this class of impostors.

Before leaving this part of this subject, we beg to be permitted to say just a word relative to the use and abuse of some articles called remedies and that are yet fostered as such by a certain class of physicians and prescribed without rime or reason in almost all diseases. We refer to alcoholics and opiates. Our cock-sure man knows that pain under all conditions must be relieved, without regard to the pathology, which the very use of an opiate disguises. He also "KNOWS" that liquor is good for everything under the sun and harbors, maybe, a grudge at the "fool temperance cranks" that have put a veto on the gigantic curse, and turns heaven and earth up side down to get rid of existing laws and, we had like to have said, violates them without any compunction. All this in the face of well established facts that except in extreme cases of agony, and then only for the time being, opiates do more harm than good. Also that alcoholics as therapeutic agents, save as they must be used in the chemistry of medicine, have been proven beyond doubt to have no place in the treatment of disease by every scientist of any note, but on the other hand, are known to be one of the chief productive agencies in many of the diseases with which the profession has to deal.

In conclusion, let us say, that sureness, certainty, positiveness are all to be commended and acted upon, provided always that every means known to the science of medicine and surgery are employed in making up an opinion; but ever remember that even then a moderate degree of conservatism is worthy a place in our estimates of the character of disease and remedy.

I do not like to say just this, but facts demand it in this connection: taken as a general rule, the more ignorant and careless the man, the greater the degree of his cock-sureness. The high-browed, painstaking, diligent student you will find usually less assertive.

## DISCUSSION.

Dr. Frank A. Jones, Memphis: My friend, Dr. McSwain, whom I have known for many years, comes four-square to all winds with his Scotch wit and humor. He has presented the subject in a very lucid and logical manner. Why I was selected to lead the discussion is a conundrum to me, and I hope in selecting me to open this discussion Dr. McSwain did not put me down on the cocksure list.

The practice of medicine today is a veritable maze of superscience, undergoing evolution and a revolution to such a degree that there are so many circumscribed boundaries, and so many requirements, so much exaction , that the most scientific man finds himself in a diagnostic doubt with reference to disease.

Dr. McSwain has compared the cocksuredness of diagnosis to a barnyard rooster. There are roosters and roosters. There are some roosters who have a right to be monarch of all they survey, and the greater the monarch, the more popular he is with the hens. (Laughter.) Some roosters are endowed with certain characteristics that are inherited.

There are diagnostic doubts, diagnostic sureties, diagnostic fanaticism, diagnostic agnosticism, prevailing today and I want to say candidly, based upon my observations in visiting the great medical centers of America, that notwithstanding these great schools for the development of American medicine, with all their many facilities and hospital equipment, they are leading medical students into diagnostic doubt. That is a fact. I would rather err on the side of cock-suredness than on the side of doubt.

There are a great many cases in which any man that has any ability; that knows any medicine; that knows his physical signs; that knows the history of medicine, that observes and examines his cases carefully and thoroughly, can be positive and mathematically sure of making a diagnosis. Then there other cases concerning which there is doubt, and the sureness is fifty-fifty between the two, and when that is the case, the fifty is on the side of sureness rather than doubt.

I have always been a great admirer of David Crockett of this State, and I think his aphorism is a good thing in the practice of medicine, namely, "Be sure you are right, then go ahead." '

There is such a thing in connection with the process of diagnostics as the faculty of intuition, and I believe as thoroughly in it as I do that the sun shines. I believe there is an innate faculty frequently in diagnosis, added to your skill, added to your knowledge of medicine with the experience you have had in a hospital there is a sixth sense in diagnostics. I believe in inductive philosophy in diagnostics. I believe you can reach conclusions in a number of instances from the facts before you with your reasoning—an argument ad hominem. I believe in that. I believe in deductive philosophy. You can make a deduction from the facts and observations in a given case and draw a conclusion therefrom.

In teaching medicine I want a student of mine to take a case and examine it carefully and thoroughly. I will stand by him ad help him out in the examination, I will correct him, but I want him to go through with that case and then tell me what his diagnosis is. I much prefer that student to make some kind of diagnosis than to shake his head and say, "I don't know." I think it is better first, last, and all the time, for a man to commit himself to a decision, right or wrong, and then have others prove whether his diagnosis is correct or not. If any opinion in regard to the diagnosis of a given case is wrong, and I have been shown that it is wrong, I am willing to take off my hat to the clinician who knows better, but I will have my opinion just the same. Stephen Decatur once said, "My country, right or wrong." Right, if it can be, but right or wrong, I am for my country. I have seen cases in consultation with Dr. McSwain, and I have never failed to give an opinion, right or wrong .

There are two sides to this question. There are some men who have more right to be cock-sure than others. I disagree with Dr. McSwain in reference to the fundamentals of cock-suredness. I think that a trained diagnostician, with hospital facilities, with a careful and thorough training that he has received, is more entitled to a cock-sure diagnosis than one who has not had these opportunities.

There is a tendency prevailing today to look askance and with a cynical eye on physicians who have not had a broad training, who have become technicians rather than diagnosticians. The great medical schools of today are turning out technicians and not diagnosticians. There is that class of men who are hypercritical. You take the hospitals of America today. You case is presented and entered into the hospital records. I would rather give my patient half a dozen clinical examinations than to write nine pages of a record regarding the case. Nowadays, according to hospital standardization methods, voluminous records of cases are supposed to be taken and kept, so that in the next twenty years it will be necessary to build a repository for these records. A record is a record, and the briefer that record is the better it is for you and for your patient. I have gone over these records with the superintendent of a certain hospital, and I have said to him, if you want the records kept fully, you do it yourself, I am not. I have written pleuritic effusion from the physical findings and there are symptoms suggestive of pleuritic effusion tubercular in nature. That is what I have written; that is all I am going to write, and if you want any more you do the rest.

The practice of medicine is individuality. All the men who graduate with honors, all the men who have the biggest marks, are not those that make the greatest records. I have taken medical students who have had only a common school education and have presented cases to them. In going over these cases they have shown they have had intuition; they have the power of observation; that they have the faculty of correlating facts and observations. They have their ears, and with their other senses they have gone at it and worked out their diagnoses, and I have said to them, what is your diagnosis? On the other hand I have taken medical students with an A. M. degree and have them go over a case, and they did not come within a mile of making an accurate diagnosis. They did not have that intuition the other boys had. There is a whole lot in intuition, a whole lot that is innate in diagnostics.

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Dr. Deering J. Roberts, Nashville: I think about 99 per cent of the gentlemen present are my juniors, but I cannot let this paper go by without commending Dr. McSwain for what he has said. No one has a higher esteem for the aphorism of grand old David Crockett than I, but be sure you are right before you go ahead. Some of our greatest men have been too cock-sure. Samuel D. Gross was regarded as one of the greatest surgeons in the world. His work on surgery was translated into sixteen different languages, and his book is one that we can well look into today and derive valuable knowledge from reading it. Dr. Gross was conducting a clinic in Philadelphia in his palmiest days before a class and the case presented was one of tumor of the scalp. He thought it was steatomatous. He was too cock-sure. Making a rapid and bold incision for its enucleation when the blood gushed up in his face from a hematoda. He clapped his hand on it to control the hemorrhage, and turned to the students and said, "What is that?" A student replied, "A gross mistake." His mistake was demonstrated to him.

Now, nature is a better healer, a better curer, and can do more for us than an ignorant doctor. The doctor who can not make a correct diagnosis after a reasonable time is an ignorant doctor. To be sure, we can not always make our diagnoses on the spur of the moment. We have to have time, may be an hour or two or a day or two or three days.

My old teacher, W. K. Bolling, once made a remark I shall never forget. It was before the days of the thermometer. In speaking of fever he said that fever is a symptom of many diseases. When called to a case of fever he afterwards said, "You have got a case of fever; what kind of fever I don't know." He said it is a snake. I can not tell you whether it is a rattle-snake or a cobra. I want some time before I can tell you definitely. Simply with the one symptom of fever we can in many cases make a diagnosis. We may not be able to make a diagnosis at first. In cases of scarlatina, one day of fever, we wait until the eruption appears. With so many days of fever in smallpox we wait until the eruption comes. You must wait for measles, so many days of fever, then the eruption appears. All you can give is placeboic remedies. In the meantime, you can give your patient fresh air and put them on a proper diet, but do not be too sure of what you have. Be sure you are right, then go ahead.

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Dr. Hazle Padgett, Nashville: I believe there are a number of gentlemen present this morning who rather feel that Dr. Jones in discussing Dr. McSwain's paper has rather misinterpreted his meaning. Dr. Jones argued along the line that after careful investigation of the case and thoroughly putting the clinical and other facts together, we should be able to make our diagnosis. Dr. McSwain's paper was really a diagnostic appeal to the members of the profession to search carefully, to look, listen, watch, and not on the spur of the moment make a quick and easy diagnosis.

In coming in contact with the brilliant lights of the profession and in the great hospitals in America and Europe, and mixing with medical students that I have talked to for a number of years, I like to think of those days. One of the great wonders to the medical student when he is in college, before he has been there long enough or has graduated, is this: A professor will come in and ask a few questions of a patient in his clinic and make the students think of a quick diagnosis, and the student says, "Isn't he a wonderful man who can put his stethoscope to the chest and ask his patient to say ah, ah, and make a diagnosis?"

The argument of Dr. McSwain's paper is simply a diagnostic clarion call to put all facts together and then make a diagnosis.

I am going to comment on a statement that my friend Dr. Jones made because he is frank in more ways than one. He expresses his opinion without hesitation or doubt. A statement that attracted my attention was this: Having an opinion is all right, but there is a difference in having an opinion based on cock-suredness than on doubt. I could name instance after instance, in addition to those which have been mentioned this morning, where it is better to doubt the diagnosis in some cases than to be cock-sure. Take, for instance, a suspicious case of tubercularization. Your symptoms are such that you are led to suspect tuberculosis infection, yet the x-ray examination, ausculation, and all other methods prove the negative side of it. How much better is it to take that young man or young woman, as the case may be, who stands on the threshhold of his or her life and say, "I am in doubt, I will not say it is tuberculosis, or that it may be, but I will do for you what is best to be done so as to save you." If I should say this is not a tuberculous infection, it can not be a tuberculous infection, and let the golden opportunity go for a cure, I do not consider I have done my duty toward the patient. So the paper of Dr. McSwain is a diagnostic clarion call to put all facts together in arriving at a diagnosis.

Dr. I. A. McSwain, Paris (closing): I wish to thank Dr. Padgett for his remarks. Dr. Jones emphasized the necessity of being absolutely sure, a proceeding which I fully endorse, provided a man uses all the means at his command to arrive at a diagnosis. The man I was trying to criticize was the individual who makes a diagnosis at once with that strange sense of what we call intuition, in which I do not believe nor does Dr. Jones.

Dr. Jones: I certainly do.

Dr. McSwain: I do not think Dr. Jones believes in intuition because I have attended his clinics and I have seen him at his work. I know him and know how thorough, careful and painstaking he is. The atmosphere in his clinic is impregnated with the most diligent and concentrated thought, and Dr. Jones can come nearer examining a man or woman in the back, in front, and inside and out, and take more pains in so doing, than any man I know of. Therein lies his intuition. He and his eyes, his nose, his ears—in fact, all his faculties are at work in making a diagnosis of his cases. There is where we get our intuition. There may be such a thing as intuition or divine inspiration. We do not know to what extent Omniscience may guide the thought of man in arriving at truth; but man must use his faculties and reason.

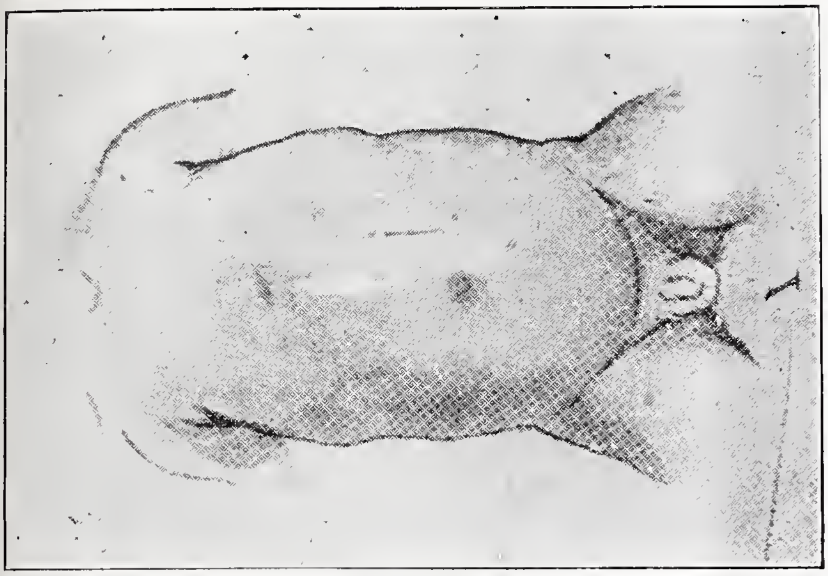
The main object of the paper is to emphasize the imperative need of using all means at our command in making diagnosis of disease, for on our diagnosis depends rational management of our cases.

## THE SURGICAL ASPECTS OF CONGENITAL PYLORIC STENOSIS.

By. William T. Black, M. D., F. A. C. S.,
Memphis, Tenn.

Congenital pyloric stenosis in infants probably occurs much more frequently than was formerly thought. No doubt a great many infants have died from this condition undiagnosed. It has only been within recent years that the condition has been more frequently diagnosed, due to two factors: first, the well trained pediatrician, and second the well trained roentgenologist. That the condition is congenital has been proven by Dent and others, who have found the hypertrophy present in the antenatal stage of life. If pyloric spasm continues long enough it may cause stenosis and you will find present in this condition a true hypertrophy and hyperplasia of muscular tissue, with an edema, which produces a tumor, which in turn produces an obstruction. The above condition must be differentiated from pyloric spasm which can be easily determined by giving belladonna, and by the use of the x-ray.

The size of the tumor formation depends upon the age of the patient and the degree of obstruction. It is more prominent in those who are older, with a marked obstruction. Where we find in an infant constant projectile vomiting after the taking of food, loss of weight, constipation with marked peristalsis



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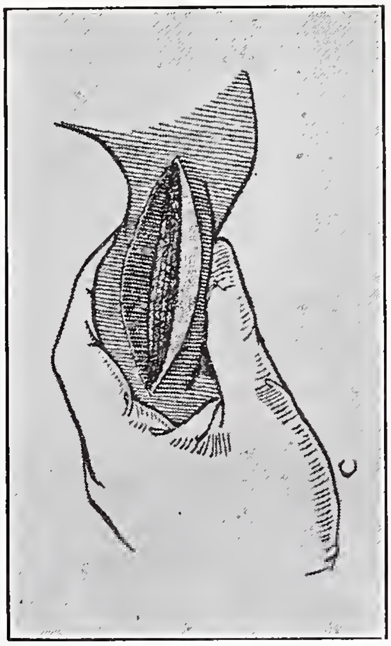

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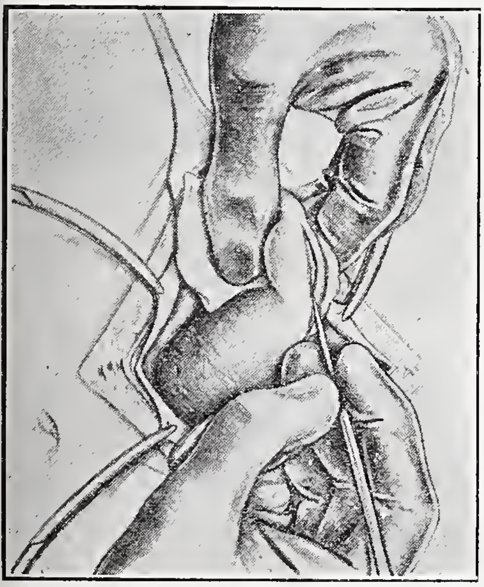

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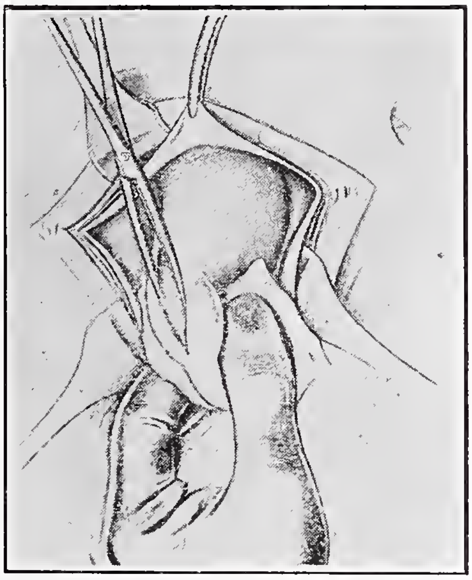

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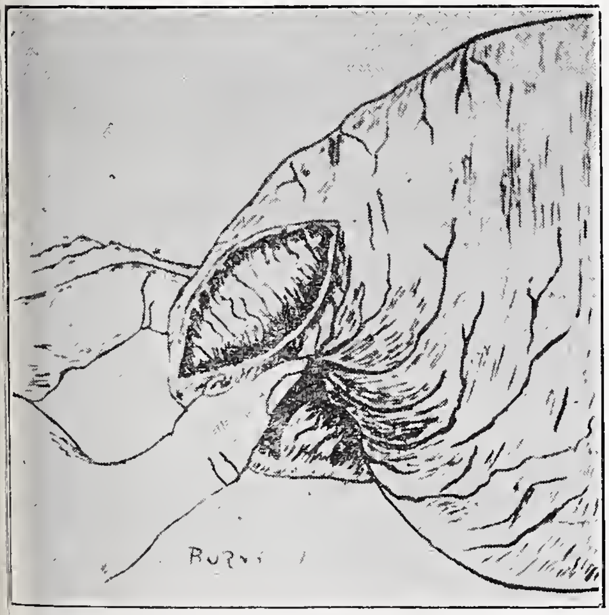

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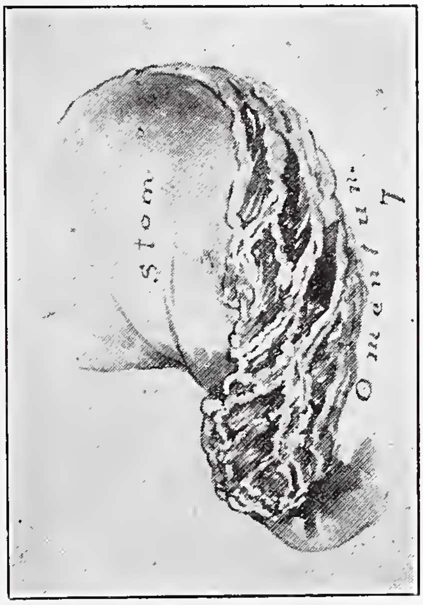

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(the latter which is from left to right) over the gastric area, with a tumor formation, we have, unquestionably, pyloric obstruction. Downes and others state that when a tumor is present it is pathognomonic.

We have various degrees of obstruction, from very mild to practically a complete obstruction. In mider cases a great deal has been done by the pediatrician with proper feeding. Where the case is more pronounced an x-ray picture should be made, with a cereal gruel and barium, to determine the amount of obstruction. In doubtful cases x-ray is not only of value in determining the presence of an obstruction, but also the point of obstruction. The location of the obstruction may be proximal to or distal to the pyloric region and Strauss states that if 80 per cent of the barium has passed through the pylorus within four hours, the case is a medical one. If only 40 per cent passes through, then it is a surgical one. If the case is proven to be one where the obstruction is practically complete, then it is strictly a surgical case. However, the case should be handled first by the pediatrician, using every method in a medical way to alleviate the condition, and it should only become a surgical case after the pediatrician has failed. On the contrary no doubt the mortality is very much higher when a case is delayed too long, for as in every other condition, the mortality will be very much lower if an operative procedure is instituted early. Cases have been cited in older children as well as in adult life, giving a clear history of the above enumerated symptoms in a modified form earlier in life, which continues through life with stomach symptoms. Beardsley reports a case where the patient went five years before dying, with symptoms of a partial obstruction.

Scott reports a case 22½ months, with symptoms of obstruction, who was operated upon at this age, which showed upon autopsy the following day a distinct hypertrophic pyloric stenosis, which no doubt might have been saved if operated upon earlier. Shaw, Elting, Rosenheim and others have reported cases similar to the above.

When it has been decided that the case is an operative one, the question arises in the minds of some as to the proper operative procedure to be instituted. A few still adhere to the gastro-enterostomy method, while the majority of those with more experience prefer the Fredet-Rammstedt method. The following will give some idea of the mortality following each method: Greenlee in 1917 reports fifteen cases of gastro-enterostomies with a 20% mortality. In 1906 Thompson collected 157 cases from literature of which 89 were operated upon with the following results:

| | No. | Cured | Died | Mortality |
|---|---|---|---|---|
| Pylorectomy ---- | 1 | 0 | 1 | 100% |
| Divulsion ------- | 17 | 8 | 9 | 53% |
| Pyloroplasty ---- | 12 | 6 | 6 | 50% |
| Gastro-enterostomy | 59 | 29 | 30 | 51% |

Downes several years ago reported 35 cases operated upon by the Rammstedt method, with a mortality of 23 per cent.

Gallie and Robertson in 1917 reported 16 operative cases in the Hospital for Sick Children in Toronto in the past two years, but they failed to state the mortality. They state that the Weber-Rammstedt operation is less dangerous than the posterior gastro-enterostomy, and produces better immediate relief.

In an article by Sloan in 1916 he states that the high mortality is due to the delay in surgical intervention and the type of operative procedure, which heretofore has been gastro-enterostomy. He further says: "The simplified Rammstedt operation has much less manipulation, is of much shorter duration, and there is a good post-operative stability of the babe to take food and retain it." He also states "that there is very much less vomiting." Lewissohn in an article in 1918 reports

9 cases operated upon with 4 deaths. The above occurred at Mt. Sinai Hospital.

Downes in 1918 reported 66 cases, Rammstedt method, with a mortality of 23 per cent. Thirty-six cases of gastro-enterostomy giving a 13 per cent mortality, according to statistics of Scudder , Stillman and Richter, a few years ago, compare favorably with Downe's mortality of 23 per cent following the Rammstedt method.

Downes in a later paper in 1920 reported 175 cases with a mortality of 17.1 per cent. In patients who came within 4 weeks or less from date of onset of the symptoms, was only 8 per cent. In selected cases he says, "it is less than 2 per cent." Downes states the average age of this group was nine weeks, while the average weight was six pounds..

Strauss in February, 1920 reported 133 cases with but 3 deaths. From the above statistics we find that the mortality rate has been much less from the Fredet-Rammstedt and from Strauss' modification operation than from gastro-enterostomy. Strauss' modification of this operation is very plausible and he has certainly had a low mortality, but in the hands of one not quite so familiar with his technique, I believe the mortality would be much higher following his technique of bringing the flap over the mucous membrane then covering with omentum as he suggests.

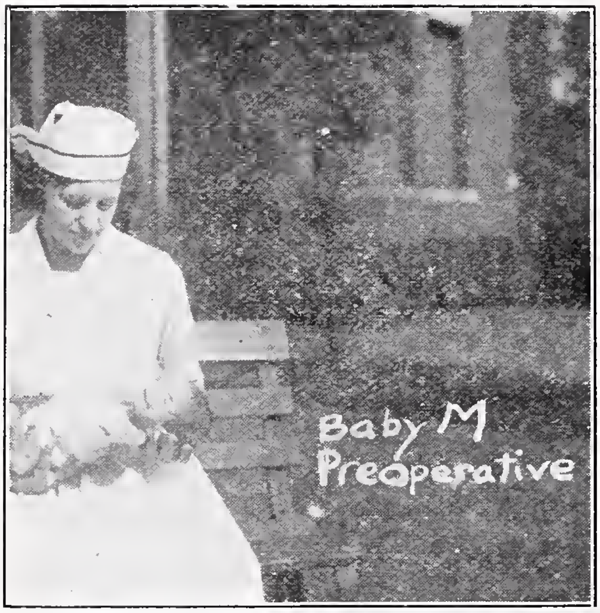
Dean Lewis reports 12 gastro-enterostomies with 3 deaths. He reports 5 cases by the Rammstedt method with no death. R. Hill reports 14 gastro-enterostomies, but does not give the mortality. He reports 22 Ramstedt operations with one death. Smythe, 1919, reports a failure of a Rammstedt, but relieved in a few days by a gastro-enterostomy. Barr, 1921, reports a successful Rammstedt.

By adding up the above reported cases, we find that there have been performed 118 gastro-enterostomies, with a mortality of 28 per cent; Fredet-Rammstedt, 414 cases with a mortality of 19 per cent.

The above mortality for both types of operations is very high, but the above list includes some of the earliest work done in this class of cases, and all pioneer work is usually followed by a high mortality. Until within recent years cases were not operated upon until only as a last resort, and even today they do not fall into the surgeon's hands sufficiently early to have as low a mortality as one desires. Undoubtedly the mortality in selected cases would be as low as 2 per cent, as suggested by Strauss and Downes, if operated on earlier by capable surgeons.

The old Fredet-Rammstedt operation only cuts through the muscular coat to the mucous membrane (see Picture No. 1) but unless modified by dissecting freely the muscular wall for one-half or over of the circumference of the gut, we do not relieve the obstruction sufficiently (see Picture No. 2). No doubt in this operation where the muscular wall is not freed properly, it may become necessary to do a gastro-enterostomy. A gastro-enterostomy is a much more hazardous operation and the mortality has been higher. There is a nicety in the technique of the operation described by Strauss, but I do not believe it necessary for good results to bring over the muscular flap, as he describes, nor the omentum, unless a perforation has taken place.

I wish to report the following case, No. 1855, illustrating the good results obtained from operating on this class of patients. The patient was one of Dr. Eugene Rosamond's J. P. M. Jr., age 5 months, male, residence, Warren Ark., white. Family history, negative. Normal birth. He was said to have weighed ten pounds at birth, and gained two pounds the first month, but after four weeks the child began to vomit immediately after feeding. Breast fed. On account of the emaciation and



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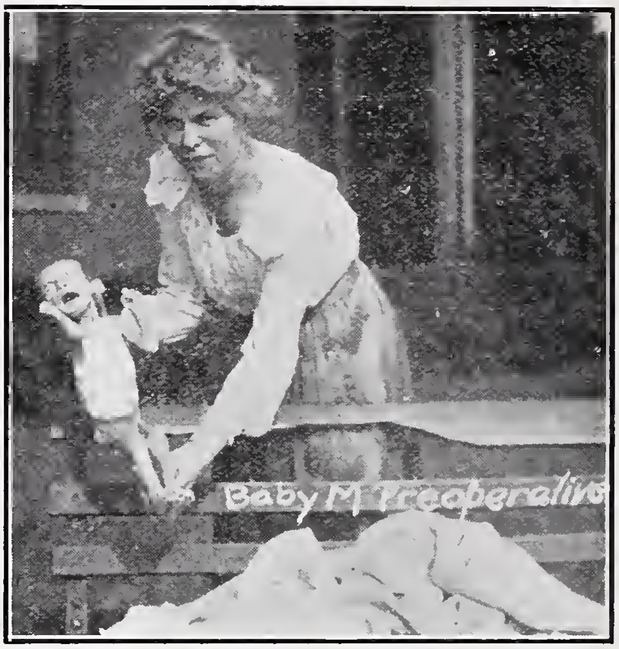

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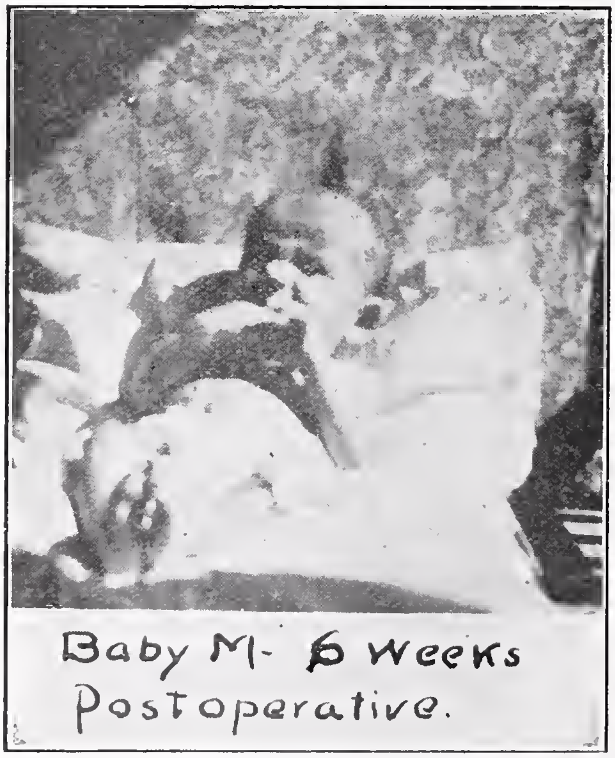

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No. 10

vomiting he was brought to Memphis to Dr. Rosamond when three months of age, and was in St. Joseph's Hospital from May 9th to the end of the month. Some improvement in his condition was noted. He gained two pounds, but vomited frequently. He returned home and after one week commenced to vomit and continued to do so incessantly until operated upon. He was brought back to the hospital 6-17-20. Dr. Rosamond was again called in and the following morning I was called in consultation. The child weighed 5½ pounds when brought back to the hospital. He was very much emaciated, weak and crying for want of food and with pain. Examination of the abdomen revealed ballooning of the stomach after the taking of food or water, with marked peristalsis from left to right. Small lump over pyloric region; cardiac action very weak, and pulse hardly perceptible. The mother gave a history of the patient vomiting everything that he would take by stomach, with abnormal stools. Dr. Rosamond's diagnosis of congenital pyloric stenosis was confirmed and an immediate operation advised. The mother was informed that probably the patient would not come off the table alive, as the operation was only done as a last resort. The patient was prepared for operation and operated on in about 3 hours, under ether anaesthesia.

Operative findings: A very marked tumor present. A modified Fredet-Rammstedt operation performed. The above operation only separates the muscular fibers down to the mucous membrane by a longitudinal incision (see Picture No. 1).

It is best to only cut through the outer portion of the muscle and separate further by blunt disconnection, being very careful not to perforate the duodenal canal. The muscles should be dissected loose from the mucous membrane for over one-half the circumference of the gut, allowing the mucous membrane to bulge freely through the muscular and peritoneal coats (see Picture No. 2). A portion of the omentum was brought up and sutured over the wound, as suggested by Strauss (see Picture No. 7). I intended to do the Strauss type of operation, but found that it would only delay the operation, as the patient was in an extreme condition, and not believing it at all essential I did the above. I do not believe it makes any material difference whether you bring a muscular or omental flap over the wound, unless you have perforated the intestinal canal, and if so the omentum should be used.

The entire time consumed, from the time the patient was placed on the table until the operation was finished, was less than 20 minutes. The patient was profoundly shocked, was put to bed, and with the addition of heat began to respond and made an uneventful recovery. Did not vomit at all after the operation. Nourishment was given after the operation, at the suggestion of Dr. Rosamond, and was carried out under his instructions afterwards. Pictures Nos. 5 and 6 show appearance of child before operation. Pictures Nos. 8 and 9 show appearance of child six weeks and eight months after operation. The child on 2-23-21 weighed 29 pounds (see Picture No. 9.) The patient left the hospital in 12 days having gained 2 pounds.

In conclusion: Congenital pyloric stenosis is becoming more frequently diagnosed and is being more properly treated both medically and surgically. The modified Fredet-Rammstedt operation is the operation of choice. It gives a good permanent result and has a low mortality, only cutting down to the mucous membrane. Fredet-Rammstedt operation does not always relieve the restriction and it is essential that the mucous membrane be dissected loose from the muscular wall as illustrated in this paper. If the stenosis is recognized early the mortality will probably be as low as 2 per cent as suggested by Downs.

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# EDITORIALS

## WEST TENNESSEE LABORATORY.

The splendid new laboratory recently erected on the grounds of the Memphis General Hospital will render a very great service to the physicians and people of Memphis and of all West Tennessee. Arrangements have been made whereby the University of Tennessee, the City Health Department of Memphis and the State Board of Health will participate in the maintenance of this laboratory and will all receive its service. Dr. William Krauss, for many years known as a most competent bacteriologist and pathologist, is the new director and it goes without saying that his connection with the laboratory in the capacity of its directing head will give the medical profession of West Tennessee entire confidence in its work and its reports.

The State Board of Health has been trying for some time to extend its laboratory service so that the needs of the entire State might be met as fully as possible. It is in large measure due to the generosity of the University of Tennessee and of the City of Memphis that the Board is now in position to offer the doctors and the people of West Tennessee the facilities afforded by the fine new laboratory at Memphis for diagnostic purposes, since the appropriations made to the State Board of Health are so meager that such service could not be afforded except with the cooperation above referred to.

Any physician in West Tennessee can now send specimens for examination for the diagnosis of tuberculosis, typhoid fever or para-typhoid, malaria, diphtheria, meningitis, rabies, and intestinal parasites to the State Board of Health Branch Laboratory, Dr. Wm. Krauss, Director, Memphis, and receive prompt reports without any cost. Examinations will be made also for the diagnosis of venereal disease for indigent persons. A limited number of examinations of water from public water supplies will also be made in the West Tennessee Branch Laboratory, but most of the water work will be done in the State Board of Health Laboratory at Nashville.

It is probable that there may be some delay in securing an adequate supply of containers for mailing specimens, but these will be on hand in sufficient quantities in a little while.

It is hoped that the physicians of West Tennessee will avail themselves fully of the laboratory service offered them through the new West Tennessee Branch Laboratory of the State Board of Health. The doctors in a few counties of West Tennessee can be better served from Nashville and these are cordially invited and urgently urged to send their specimens for examination to the State Board of Health Laboratory, Nashville.

Arrangements will be made at a very early date, probably by Nov. 10, to open the East Tennessee Branch Laboratory of the State Board of Health. Announcement will be made through these columns and otherwise.

## PUBLIC HEALTH INSTITUTE AT MEMPHIS.

The United States Public Health Service Institute held last year was such a decided success that the Service has determined to hold many such institutes this year at various places throughout the country. One of these institutes will be held at Memphis in January. The Memphis and Shelby County Medical Society, the University of Tennessee School of Medicine, the City Health Department of Memphis, and the State Board of Health will all cooperate with the U. S. P. H. Service in conducting the institute. Some of the most noted specialists and public health workers of the country will appear on the program and it is hoped that all the health officers and physicians of West Tennessee, as well as any other persons who are interested in the great subject of public health will attend. The exact dates of the institute and the entire program as finally decided upon will be given in this Journal.

The committee appointed by Dr. W. G. Somerville, President of the Memphis and Shelby County Medical Society to have charge of the arrangements is Dr. J. J. Durrett, Chairman, Dr. Marcus Haase, and Dr. R. L. Pierce.

## DR. O. DULANEY.

For a number of years the first comers at the annual meetings of the Tennessee State Medical Association have always found Dr. O. Dulaney, of Dyersburg, on hand to greet them and the last to leave have always found him still there to do his full part toward promoting the work of the Association. In the House of Delegates Dr. Dulaney has always been an active and earnest worker for more than fifteen years and as a member of important committees, as president, and as a "line member" he has worked in season and out of season for the cause of organized medicine in Tennessee. It will be with keen regret that the large body of our members who have been meeting him year after year at the annual meetings will hear of Dr. Dulaney's removal to Louisville, where he has accepted a position on the teaching staff of the University of Louisville, School of Medicine. In addition to his teaching, Dr. Dulaney will continue in the practice of his chosen specialty.

The good wishes of a large number of friends in Tennessee will follow him to his new home, where it is hoped that the success which came to him in his "Home State" will continue to attend his efforts.

## COMMITTTES FOR 1921-22.

The following Committees have been appointed by Dr. William Britt Burns, President of the Tennessee State Medical Association to serve until the next annual meeting to be held in Memphis in April, 1922.

All committeemen were notified by the Secretary of their appointment some weeks ago, but this list will be printed in the Journal for two or three months in order that every man on every committee will know that he has been appointed and that he will be expected to fully discharge the duties assigned to him.

For several years important committees have failed to have reports at our annual meetings. At one meeting the excuse for failure to function would be that the committeemen were notified of their appointment so far ahead that they forgot all about it. Whereupon the Secretary would wait the next year to notify the committee members of their assignments until about two months before the annual meeting, only to be met with the assumed indignant "What do you expect us to do at this late date?" This year we have told them early, we now tell them again, and a little later we will repeat the news. The committee that comes up without a report next time will have to bring in a new excuse.

Some of the members of committees have written to know what they are expected to do and what their committees are for, anyhow. Well, some of them are old standing committees who know exactly what is expected of them by past experience. Some others know, because the names of their committees tell them just what they are to do. Some others were appointed for the express purpose of finding out what they should do and what the Association should do. All of them should get right on the job and help in every way possible to get up a helpful report for next April.

One committee chairman has informed us that he has written repeatedly to the other members of his committee, but that only one has taken the trouble to reply to any of his letters. Our advice to that chairman is to ask the President to make new appointments and to notify the first appointees that they have been replaced with men who it is hoped will do something for their Association.

Dr. Burns has tried to select good men for all committees and he has succeeded, but even good men sometimes have been known to fall down on jobs that they ought to do. Let us not have any blanks in the list of committee reports next April.

Committee on Public Policy and Legislation:

Dr. H. M. Tigert, Chairman, Nashville; Dr. H. S. Shoulders, Nashville; Dr. A. G. Nichol, Nashville; Dr. A. B. DeLoach, Memphis; Dr. E. R. Zemp, Knoxville.

Commiettee on Memoirs:

Dr. I. A. McSwain, Chairman, Paris; Dr. Carroll C. Turner, Memphis; Dr. D. E. Shields, Morristown; Dr. R. W. Griffin, Tiptonville; Dr. T. E. Abernathy, Chattanooga; Dr. S. S. Moody, Shelbyville; Dr. M. B. Murfree, Murfreesboro; Dr. G. H. Price, Nashville; Dr. W. J. Sugg, Dickson; Dr. G. P. Zirkle, Kingston; Dr. J. L. Edwards, Brownsville; Dr. M. L. Blanton, Union City; Dr. T. B. Wingo, Martin Dr. B. F. Fyke, Springfield; Dr. J. J. Cullings, Memphis.

Committee on Medical Defense:

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Committee on Conservation of Vision:

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Dr. J. B. Steele, Chairman, Chattanooga; Dr. W. N. Lackey, Gallatin; Dr. A. F. Richards, Sparta; Dr. W. J. Matthews, Johnson City; Dr. Oliver Hill, Knoxville; Dr. S. S. Crockett, Nashville; Dr. Coleman C. Burns, Memphis; Dr. G. B. Gillespie, Covington; Dr. N. S. Walker, Dyersburg.

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## MIDDLE TENNESSEE MEDICAL ASSOCIATION.

The Middle Tennessee Medical Association is a society with a fine record of service. For many years it has held its semi-annual meetings at one or the other place where it was believed the most good might be accomplished. There are a number of good doctors in all of the three grand divisions of Tennessee who received their training as medical debaters and speakers on its floor and there are many more who were brought to an appreciation of the many benefits to be derived from the medical societies by reason of their membership in this one. For many years the Middle Tennessee was known, and justly so, as a real "fighting" society. Many spirited scientific debates have enlivened its programs, developing the latent oratorical and argumentative faculties of the participants and yielding pleasure and instruction to their hearers. But of late years, since the great war came along to upset everything everywhere, the work of this, as of many other medical associations, has not been up to the old standards. The last meeting at Springfield was a good one from every standpoint. The next will be at Dickson, November 10 and 11 and a great effort is going to be made to have this one just like those of old times.

Dr. Eugene Orr, Nashville, is the President, Dr. T. R. Ray, Shelbyville, is Vice-President, and Dr. Milton Tharp, Nashville, is Secretary. The program is now being made up. Prospective contributors should communicate at once with Dr. Tharp.

## TEETH AND TONSILS.

The following lines have been sent to the Journal by the writer thereof after she had been importuned by a number of her acquaintances among Nashville's doctors:

Now what do you think we all will do,
  Whose got a pain or ache,
When the "medicine man" he says to you,
  "Your **teeth** we'll have to take."

Then sure he'll ask to see your throat;
  He looks and **'pears** to pant.
"My friend" says he, "It'll get your goat
  If these **tonsils** don't come out."

Well, I don't believe much in combines,
  When it lifts the pocket string,
But if **Doctors** and **Dentists** don't own mines
  **There** aint no such thing.
—Ethyl Sprouse Carter.

## A NEW SECTION—SOUTHERN MEDICAL.

Dr. Paul V. Anderson, Secretary of the New Section on Neurology and Psychiatry of the Southern Medical Association has requested that the splendid program which has been prepared for the Section be presented to the readers of the Journal. We take great pleasure in complying with this request. The program is as follows:

### Program of the First Annual Scientific Session of the Section in Neurology and Psychiatry.

At Hot Springs, Nov. 14.

PSYCHIATRY. I.

A Symposium on Early Detection of Mental Disorder.

1. An Evaluation of Intelligence Tests.
    Invited guest, Professor Fletcher of Tulane University and Sophie Newcomb College.
    Discussion:
2. Early Recognition of Mental Disease.
    Dr. Roy M. Chapman, Sheppard and Enoch Pratt Hospital, Towson, Md.
3. Psycho Neuroses in their Incipiency.
    Dr. Sidney Schwab, St. Louis, Mo.
4. Early Manifestations of Psycho Neuroses.
    Dr. Louis R. Bisch, Asheville, North Carolina.
    Discussion (of above three) opened by Dr. Bondurant, Mobile, Ala., and Dr. Somerville, Memphis, Tenn., Dr. S. Roberts, Atlanta, Ga. and Dr. Bliss, St. Louis, Mo.
5. Psycho Neuroses in Public Health Hospitals.
    Dr. Benton, Miami, Florida, U. S. P. H. S. Hospital, Gulfport, Miss.
    Discussion, Dr. W. W. Graves, St. Louis, Mo., and others.

NEUROLOLGY.

Part II.

1. Chairman's Address: The Treating of Neurology, Psychiatry and Psychopathology, and Their Relation to General Medicine and Other Specialties, Especially the Eye, Ear, Children, Orthopedics, Gastroenterology, and Genito Urinary Disease.
2. The Pathology of Pellagra, From Clinical and Neuropsychiatric Aspects.
    Dr. W. M. Bevis, U. S. S. H. S. Hospital, Augusta, Ga.
    Discussion, Dr. R. N. Greene, Jacksonville, Fla., Dr. E. P. Bledsoe, P. H. S.
3. Muscular Strophies and Dystrophies contracted with Emaciation.
    Dr. Beverly Tucker, Richmond, Va.
4. Presentation of a patient with Progressive Lenticular Degeneration.
    Dr. M. L. Graves, Galveston, Texas.
5. A Peculiar Case of Hysteria.
    Dr. E. Bates Block, Atlanta, Ga.
    Discussion, Dr. Sydney Schwab, St. Louis, Mo., and Dr. Houston, Augusta, Ga.
    Demonstration of Specimens, Charts, etc.

## DR. JOHN WESLEY CARMICHAEL.

Dr. John Wesley Carmichael died August 7, 1921, at his home, Knoxville, Tenn., as a result of acute dilatation of the heart. He was born in Jefferson county. Tennessee, Sept. 11, 1849. Graduated in medicine at Vanderbilt University, 1887. Moved from his native county to Knoxville, January, 1888, where he remained in active practice to the time of his death. During his entire medical career he was a member of the County, State and American Medical Associations.

Jesse C. S. Sill, Sec'y.
Knox County Medical Society.

## DEATHS.

We have just heard of the recent death of Dr J. C. Norvell, at his home near Brownsville. Dr. Norvell was for several years a member of the Haywood County Medical Society. The Journal is not yet advised as to the cause of Dr. Norvell's death.

Dr. J. T. Graves, a member of the Henderson County Medical Society, died suddenly at his home at Juno on October 9, 1921. Dr. Graves was helping with some work on his farm when he was overcome by hemorrhage into the brain and died very quickly.

## PERSONAL NOTES.

Dr. Clement H. Marshall, recently of the University of Michigan, has located at Memphis and has become associated with Dr. Marcus Haase in practice limited to diseases of the skin, syphilis and radiotherapy.

Dr. M. B. Davis was recently elected Superintendent of the Nashville City Hospital, which has recently begun to operate under a new plan, a complete staff having been appointed. Dr Davis is a young man who has gained the respect of the Nashville profession by his bearing and by his work as a physician and he takes up his new assignment with the assurance that he will receive the hearty cooperation of his fellows.

## CANCER WEEK.

The American Society for the Control of Cancer is going to put on an intensive educational campaign for cancer during the week October 30—November 5. Addresses are going to be made by physicians throughout the state to various civic, fraternal and club organizations informing them of the prevalence, modes of prevention and management of cancer. Short pamphlets setting forth vital facts, urging people to have defects remedied and cured in their incipiency will be circulated by insurance companies and other organizations. A short statement of the cancer question, prepared by Professor W. W. Keen, will be read in every church possible as an educational and prophylactic measure.

Our profession has the knowledge and it must be transferred to the laity, to the uneducated as well as the well-to-do. Every local, county and district medical society should have a meeting during that week with one or more members presenting plans for the dissemination of our knowledge to have the patient apply for relief in the beginning of their malady. They all come to the physician too late.

Let every physician in Tennessee do his duty as a committee of one every day during cancer week.

## MISCELLANEOUS.

**Thyroid in Obesity.**—J. H. Means carried out studies which show that the basal metabolism is normal in cases of obesity. The widespread treatment of obesity by the administration of thyroid preparations is a device for raising metabolism to an abnormal level. The treatment of simple obesity by producing a state of hyperthyroidism has recently been designated as pernicious by Means. Simple obesity can now readilly be differentiated from the obesity due to endocrine disorders by determination of the basal metabolism. If this is normal, weight reduction should not be attempted by the use of thyroid (Jour. A. M. A., Sept. 3, 1921, p. 792).

**Treatment of "Hay Fever."**—Although the essential features of the etiology of "hay fever" are believed to be understood, the treatment is still largely of the hit or miss type. Preparations of mixed pollens are distributed by commerical houses and used by physicians in the hope that some ingredient will prove to be potent. Several facts seem at length to be so well established that they may serve almost as axioms in the clinic of hay fever. One of these is that although the offending pollens vary in different parts of the world as well as at different seasons, the number chiefly responsible for the attack in any single locality is comparatively small. Hence it becomes the duty of the physician to familiarize himself with the offending pollens in his locality or the locality whence his patients hail. Fortunately I. C. Walker has reported on the pollens which are responsible for "hay fever" in the New England states; G. Selfridge on those in California; K. K. Koessler for Illinois, and W. Scheppegrell for the Southern States. It is important that for each case of "hay fever" the offending pollen should be determined by skin tests and also that the treatment should be preseasonal (although treatment during the season may sometimes benefit). In extenuation of the frequent failure to relieve patients it is to be noted that certain persons have symptoms ranging from sneezing to asthmatic attacks due to the odors of flowers that have no pollen as well as the presence of non-specific factors in the respired air. Obviously, pollen extracts are of no avail in such cases (Jour. A. M. A., Sept. 3, 1921, p. 791).

**The Expensive "Poor Man's Medicine."**—A favorite argument of the nostrum exploiters, advanced when threatened with restrictive legislation or taxation, is that "patent medicines" are the poor man's medicine. Never had a pretension flimsier basis of fact. The purchaser who buys a bottle of Dr. Quack's Quick Cure does not realize that about 75c of his dollar has been expended by Dr. Quack in an effort to convince him that he is suffering from something from which "Quick Cure" is a sure-shot remedy. The abolition of "patent medicine" advertising would do much to abolish the making of hypochondriacs by suggestion and would result in a great decrease in all drug taking. In addition, if John Doe purchased a simple home remedy, he would have to pay for the cost of the medicine only and not for the cost of an expensive advertising campaign to promote its sale. (Jour. A. M. A., Sept. 10, 1921, p. 867).

**Diphtheria Preventive Measures.**—It seems likely that the securing of widespread immunity is to be an important aim in the prevention of diphtheria. In this work the Schick test, whereby the existence of immunity or susceptibility to diphtheria can be determined with ease and precision, seems destined to play an important part. Thousands of tests have been applied to school children of New York. Further, in the recent test more than 52,000 school children of New York, those who gave a positive test were injected with toxin-antitoxin mixture to secure active immunization. If the medical profession accepts the contention that the Schick test is a reliable indication of the susceptibility to diphtheria and, further, that the currently proposed methods of toxin-antitoxin injections are effective in developing a lasting immunity, a great step in progress will have been made. (Jour. A. M. A., Sept. 24, 1921, p. 1025-.

## DIPHTHERIA CONTROL.

While there has been a marked advancement in the treatment of diphtheria, with a corresponding decrease in the mortality rate since the introduction of antitoxin, Bernard W. Carey, Boston (Journal A. M. A., Aug. 27, 1921) asserts that there has not been the reduction in the morbidity that might reasonably have been expected. This constant high incidence becomes more remarkable when it is realized that all necessary laboratory and epidemiologic knowledge is at hand to prevent and control diphtheria outbreaks. Reaching beyond this, however, is the knowledge of the Schick test for the determination of those susceptible to diphtheria infection, and of the toxin-antitoxin mixture for the immunization of the non-immune. In spite of the fact that all agencies necessary for the eradication of diphtheria from the community are available, the infection still exists mostly in endemic form A careful study of the various factors entering into the failure to make such progress in the prevention of diphtheria brings to light the fact that not sufficient intensive work is done by public health authorities, save under epidemic conditions. Little or no effort is expended to find the source of infection in the sporadic case, and carelessness in culturing for release of quarantine adds many cases to our yearly total. Often effort is directed to the school age group, with resulting school cultures, while perhaps the pre-school age group is far more likely to be the source of infection. What is the remedy for this condition?

1. Education of physicians and the laity to the fact that all agencies are available for the immunization of the susceptible, and for the diagnosis of the treatment of the disease.

2. Intelligent study and treatment of the "carrier" or, perhaps more correctly, the "missed case."

3. Education of the laity to the fact that diphtheria is often insiduous in onset and mild in course, and recovery is uneventful for the patient, yet serves as the focus of multiple infections of a far more virulent type.

4. Education of the local health officers as to the necessity of intensive investigation of the source of each case, an of the necessity of immunizing other members of the infected household.

## OBSERVATIONS ON HEMORRHAGES OF OVARIAN AND TUBAL ORIGIN.

Edward A. Schumann, Philadelphia (Journal A. M. A., Aug. 27, 1921) advises that a diagnosis of extra-uterine pregnancy should never be definitely made until an embryo is found or evidences of decidual and placental formation are revealed by the microscope. This is particularly true in cases in which the social state of the patient preclues legitimate pregnancy. When massive hemorrhage takes place from an ovary, there is usually, if not always, to be found some disease of the ovarian blood vessels. Normal ovaries do not give rise to massive hemorrhage.

### BOOK REVIEWS.

**The Surgical Clinics of North America.** Published bi-monthly by W. B. Saunders Company, Philadelphia. Price per year $12.00. Vol. 1, No. 1, Philadelphia number. Vol. 1, No. 2, New York number. Vol. 1, No. 3, Boston Number. Vol. 1, No. 4, Chicago number.

The Surgical Clinics of North America, one number of which is issued every second month, is a splendid publication of its sort. As indicated above, each number is the product of a distinct group of surgical leaders, either from one particular city or from one section. The clinics presented are chosen because they are of real teaching value and reflect the best surgical opinions of this continent, as well as to illustrate the latest and best operations and non-operative methods.

**A Treatise on Cataract.** By Donald T. Atkinson, M. D., San Antonio, Texas. The Vail-Ballou Company, New York.

This is a general resume of the subjeht of cataract. The book is profusely illustrated with original drawings and photographs, which portray the various steps in cataract operation and other subjects pertaining to cataract. The author has presented his subject in great detail.

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# THE TREATMENT OF NEUROSYPHILIS*

By W. H. Leake, M. D., Resident Physician,
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Dennie and Smith (1), in a series of three hundred known cases of syphilis, have demonstrated by examination of the cerebrospinal fluid that twenty per cent. in the primary stage, fifty-five per cent. in the early secondary, and ninety-three per cent. in the late secondary stages show involvement of the central nervous system. Ravaut (2) found evidences of involvement, with pleocytosis or globulin excess, or both, in 67 per cent. of cases in the secondary period; Altman and Dreyfus (3) in 66 per cent. Gennerich (4) reports that 90 per cent of his cases in the secondary period showed some abnormality in the cerebrospinal fluid. Swift and Ellis (5) found only 33 per cent of abnormal fluids in untreated cases in the secondary period, but in their opinion the percentage would have been somewhat higher had the fluids of all patients in the secondary period been included in their statistics. Wile and Halsey (6) found deviations from the normal in the spinal fluid of 221 cases (22 per cent.) of primary syphilis. Fordyce (7) concludes that syphilis of the nervous system probably begins in the first year of the infection and the number of cases corresponds roughly with the total number of cases of so-called late neurosyphilis.

From the above observations one can readily see that syphilitic involvement of the nervous system may occur in both the primary and secondary stages, the proportion of cases in the latter period being surprisingly large. Since only a relatively small number of these patients show involvement of the nervous system in later years, it is safe to assume that in many cases this infection must undergo spontaneous resolution.

It is extremely important that we recognize the early involvement of the central nervous system, as by proper treatment at this time the more destructive and irreparable lesions which occur later may be prevented. The best treatment of tabes, paresis, brain gummata and other syphilitic involvement of the central nervous system is prophylaxis. The clinical and serologic study of syphilis during the past few years has shown definitely that in the great majority of cases, neurosyphilis is not cured by the administration of specific remedies in the usual way. The blood Wassermann reaction becomes negative, and the patient feels that he is cured, only to find at a later date that his nervous system is involved. In view of this fact, no case of syphilis should be discharged from treatment until a spinal fluid examination has been made. Corbus (8) found spinal fluid involvement in 18.3 per cent of a series of so-called "biologically cured" patients, who had received what was considered adequate treatment for general syphilis, and had been discharged with a negative blood Wassermann reaction.

Because of the early involvement of the nervous system, a number of authors are of the opinion that there is a strain of treponema with neurotropic affinities or rapid invasive power (9, 10). The absence of skin manifestations in a large percentage of cases of syphilis of the nervous system further distinguishes this strain from the usual one (11).

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### Intraspinal Therapy.

Mariuesco and Minea (12), Wechselmann (13), Berriel (14), Verne and Block (15), Marie and Levaditi (16), Ravaût (17). Gennerich (18), and others injected salvarsan or neosalvarsan directly into the spinal fluid. Marinesco and Minca added a small amount of neosalvarsan to the patient's serum, which had been previously inactivated. Horsley (19), in 1910, suggested subarachnoid lavage with 1 to 1,000 bichloride of mercury solution, but this method was soon abandoned for obvious reasons.

Sicard (20) has recommended a solution of 0.1 mg. cyanide of mercury and novocaine in 0.5 per cent saline for intraspinal injections. The beneficial effects are not attributed to the mercury, but to the increased permeability of the meninges resulting from the irritation which follows the subarachnoid injection.

Byrnes (21) advises the use of mercurialized human serum, 1.3 mg. to 2.6 mg. of mercuric chlorid being added to 12 c.c. of serum, an albuminate of mercury resulting. The technic for the preparation and administration of the serum is similar to that employed in the Swift-Ellis method, except that no drug is administered before withdrawing the blood. The mixture is clear, and apparently the treatment can be repeated many times without producing any more severe symptoms than are present following the injection of normal serum. Mercurialized horse serum has also been used, but the danger of an anaphylactic state to horse serum following repeated injections is too great to be overlooked; repeated injections over a long period of time may sensitize the meninges or produce a chronic meningitis similar to the condition for which the treatment is given. The method of Byrnes is deserving of consideration before intraspinal therapy is undertaken.

Marinesco and Minea (22) have injected neosalvarsan intracranially. Sicard and Reilly (23) injected neosalvarsan or cyanid of mercury subdurally in the temporo-frontal region, this treatment being followed by an intravenous injection of neosalvarsan. Berriel (24) used the sphenoidal fissure for subarachnoid injections of salvarsanized serum. Ballance (25) injected as much as 90 c.c. of salvarsanized serum into the lateral ventricles through a trephine opening, a blunt trochar and cannula being passed through the brain substance into the ventricles. The intracranial method was thought to be of especial value in the treatment of paresis, because it was believed that substances injected intraspinally failed to come into contact with the cerebral cortex. It has been demonstrated, however, by Dandy and Blackfan (26), that solutions are diffused rapidly through the entire spinal and cranial subarachnoid space. Their experiments showed definitely that intracranial injections have little, if any, advantage over intraspinal injections, so far as the distribution of solutions is concerned. Recently, in this country, Skoog and Menninger (27) have made use of intraventricular injections of auto-salvarsanized serum in non-paretic syphilis with more or less success. Twelve cases were treated intensively with the following clinical results: marked inprovement in two cases, slight improvement in six, none at all in two, and fatality in two; the laboratory data indicated marked improvement in two cases, slight improvement in five, none at all in three. The clinical and laboratory data in point of response to treatment agreed precisely in only twenty per cent of the cases, and differed completely in fifty per cent. showing a tendency to be reciprocal.

The intracranial method is difficult, dangerous, and impracticable; the simplicity and comparative safety of the intraspinal route makes it the one of choice.

It has been demonstrated by several investigators that salvarsan or neosalvarsan introduced directly into the spinal fluid may produce grave results. Swift and Ellis (28), working with monkeys, have shown that subarachnoid injections of salvarsan may produce paralysis; 1 mg. or more of salvarsan produced in every case cell counts of over 1,000, while even 0.2 mg. produced a marked pleocytosis which still persisted ten days after the injection.

Swift and Ellis (29) found that the serum of rabbits treated intravenously with neosalvarsan, and of syphilitic patients treated intravenously with neosalvarsan or salvarsan, has a definite spirochaeticidal action upon spirochaeta duttoni. It was found that the spirochaeticidal action of the serum of salvarsan or neosalvarsan treated rabbits and patients was markedly increased by heating for thirty minutes at 56 degrees C. It was suggested that the increased spirochaeticidal action was due in part to the destruction of some inhibitory substance contained in normal serum, and in part to a direct effect of the heat upon the serum and salvarsan mixture.

As first applied by Swift and Ellis (30) their treatment consisted of injecting into the subarachnoid space salvarsanized serum, that is, the serum from a patient treated intravenously with the drug one hour before; it was administered diluted with normal saline in strengths varying from 40 to 100 per cent. It was thought that the diluted serum was less irritating, but it was subsequently found that the whole heated serum could be used without any more reaction than with the older method. (31).

Ogilvie (32) recommends the intraspinal use of human serum salvarsanized **in vitro.** The patient is bled without receiving an intravenous injection of salvarsan or neosalvarsan; the blood is immediately centrifugalized, and the fibrin and cellular elements thrown down. To 15 c.c. of the serum is added the amount of salvarsan to be given, but the dose is kept within 1 mg. Ogilvie lays stress on the fact that the temperature of the salvarsan solution and the serum should be the same when the two are mixed. The serum is then gently agitated in order to thoroughly mix the two, and is placed in a thermostat at 37 degrees for 45 minutes, then in a thermostat at 56 degrees for 30 minutes. Under no circircumstances should a serum be used that is more than three hours old.

Kolmer (33) has advocated further modifications which consist essentially in saturating the patient with mercury or potassium iodide before giving the intravenous arsephenamin injections. The blood is drawn into a sodium citrate solution immediately after the injection is given. After centrifugalization of the blood, 0.0003 mg. arsphenamin is added to 10 or 12 c.c. of serum, after which the serum is heated for 30 minutes at 56 degrees, C. About 30 c.c.. of spinal fluid are drained off, and the arsphenamized serum is injected. Kolmer states that the principal advantages of this method are: (1) the patient receives arsphenamin both intravenously and intraspinally; (2) time saved, due to drawing the blood into citrate; (3) drawing off a large amount of cerebrospinal fluid and injecting only 10 c.c. of serum, thereby simulating the method of spinal drainage.

Certain authors are of the opinion that in the treatment of neurosyphilis spinal drainage in conjunction with intravenous therapy is sufficient. Gilpin and Early (34), in 1916, were the first to advocate this form of therapy. Pilsbury (35), in 1917 reported his results with the employment of mercurial inunctions with spinal drainage. "On the whole, the results are not striking, and similar effects might be reasonably expected without spinal drainage..' Dercum (36), in March, 1920, strongly advocatel spinal drainage, especially in paresis and tabes. He practices spinal drainage immediately following intravenous salvarsan medication; routine mercurial therapy is also used. According to Dercum, the results obtained by the method in which salvarsanized or mercurialized serum is employed are not due to what is introduced into the dural canal, but to the withdrawal of the fluid, which, he asserts, is always practiced in connection with such methods. He believes that the results of the so-called intraspinal therapy can be duplicated merely by drainage of fluid following intravenous medication. In the usual forms of intraspinal therapy the fluid withdrawn is replaced by the serum, hence the statement that the results are due to the lowered hydrostatic pressure in these cases is erroneous.

Becht (37) found in experimental work that nicotin and epinephrin are not absorbed rapidly enough from the spinal canal to produce the characteristic physiologic effect on the blood pressure, and that epinephrin can be detected in the fluid at least five hours after its injection. The suggestion of Dercum that substances injected into the spinal canal are dissipated so quickly that they can produce no blood therapeutic effect is at variance with this.

### Technic of Intraspinal Salvarsanized serum Therapy.

One- half hour after an intravenous injection of 0.9 mg. neosalvarsan and 5 mg. of oxycyanide of mercury about 40 c.c. of blood are drawn into a 50 c.c. constricted neck centrifuge tube fitted with a McRae needle; the blood is allowed to coagulate, the clot separated from the side of the tube by means ot a platinum loop or ''spud,'' and then centrifugalized at high speed for 20 minutes. Fifteen c.c. of serum are then pipetted off into a sterile test tube and placed in the water bath at 56 degrees for one-half hour. Lumbar puncture is then performed, and from 15 c.c. to 30 c.c. of the cerebrospinal fluid allowed to flow slowly through the needle. The barrel of a 20 c.c. Luer syringe is connected to the needle by means of a small rubber tube about 20 cm. in length. After the tube is filled with cerebrospinal fluid, the warm inactivated serum is then poured into the syringe and allowed to flow slowly into the subarachnoid space by means of gravity; at times it is necessary to insert the plunger of the syringe to inject the last few c.c., but it should be allowed to fall by its own weight. By the gravity method, the danger of suddenly increasing the intraspinal pressure, such as might occur with rapid injection with a syringe, is avoided. Very frequently, the patients complain of pains in the legs, commencing usually a few hours after the injection; in tabes this pain is often more severe than in cerebrospinal syphilis, and is often accompanied by muscular twitchings, but sedatives in nearly all cases control it. Following the subarachnoid injection, the foot of the bed should be elevated and allowed to remain so for twelve hours.

The method described above is used at the Vanderbilt University Hospital and is very similar to the later Swift-Ellis technic. The intravenous administration of oxycyanide of mercury has been quite satisfactory; a French preparation is used and is given immediately following the intravenous neosalvarsan injection and, usually, through the same needle. This was not originally given with any idea of bringing mercury into contact with the meninges and cord, but merely for the sake of convenience. However, it may be of interest to determine the amount of mercury, if any, contained in the blood drawn one-half hour after the intravenous injection.

Following an intraspinous treatment the patient should remain in bed at least twelve hours or longer, as the after effects may be both troublesome and alarming. The ordinary lumbar puncture headache, due to the withdrawal of cerebrospinal fluid, may come on within a few hours. and is sometimes accompanied by vomiting, or the symptoms may be delayed until the patient is up and about for an hour or more; these disappear on the resumption of the recumbent position. Elevation of the foot of the bed apparently aids materially in preventing these troublesome symptoms, not only in the treatment cases, but in patients punctured for diagnosis as well; it has been adopted as a routine procedure at the Vanderbilt University Hospital following all lumbar punctures. It is sometimes necessary to keep these patients with lumbar puncture in bed for several days, otherwise they may be very uncomfortable for two weeks or more. Following intraspinal treatments, some patients complain of severe pains in the legs, sometimes in the back; they vary in intensity from fleeting pains to cramping or lightning-like seizures. These attacks are met with more frequently in tabes, and may require the use of opiates, but usually pass off during the night, although more or less discomfort may persist for several days. In cases treated at too close an interval or, if the Ogilvie method is used, in which the serum has been fortified with too large a dose of neosalvarsan or salvarsan, these symptoms especially if accompanied by bladder or rectal disturbances, or numbness of the thighs, should be looked upon as danger signals, and the treatment should be discontinued until the condition has entirely cleared, and when treatment is resumed, only the Swift-Ellis method should be used. Over-enthusiastic members of the profession should be warned against too frequent repetition of the injection or the addition of too great a dose of the drug in reinforcing the serum, as permanent weakness of the lower extremities and even complete paralysis may result.

It is considered advisable in all cases of neurosyphilis to begin treatment with a short course of mercury to prevent the possible occurrence of a Herxheimer reaction. In cases of suspected gummata, marked improvement is often noted following a vigorous course of potassium iodide. Following this preliminary treatment, six or eight intravenous salvarsan injections are given at weekly intervals; at the end of this perod, if the spinal fluid shows no improvement, intraspinal therapy should be seriously considered, the number and intervals to be governed by the reaction produced. At the Vanderbilt University Hospital, intraspinal treatments are usually administered every two weeks, but in selected cases the interval may be shortened; in certan patients an intravenous injection of neosalvarsan and oxycyanide of mercury every week with an intraspinal treatment every two weeks seems to produce the best results, but this should be governed by the individual case. After six or eight intraspinal treatments, the patient is given a "rest" of from four to six weeks, at the end of which time the treatment is resumed. In the types of the disease in which the symptoms are urgent, and early response is considered essential, intraspinal therapy may be resorted to without the preliminary treatment, but better results are obtained by combining the two routes of medication.

I am not advocating subarachnoid therapy in every case of neurosyphilis, but only in those failing to respond to a reasonable amount of intensive intravenous therapy. The best results are obtained in the cerebrospinal cases, but certain patients with tabes respond in a most gratifying manner. It does not seem unreasonable to suggest that all early cases of neurosyphilis which fail to respond to ordinary methods of treatment should be given the benefit of intraspnal therapy. On the other hand, when simple intravenous medication brings about clinical and serologic improvement, and in all cases with negative findings in the cerebrospinal fluid even though clinical symptoms may be present, one should hesitate before subjecting these patients to intraspinal medication.

It is not my intention to criticize unjustly the spinal drainage method of treatment, but I believe that if all the cases subjected to this therapy were carefully followed, the results would be very disappointing. Advocates of the drainage method state that withdrawal of the cerebrospinal fluid produces an increase in the permeability of the capillaries, thereby allowing a greater penetration of the arsenic. Numerous workers have shown that the choroid plexus is practically impermeable for most inorganic substances, and very few drugs which can be demonstrated in the blood after oral, subcutaneous or intravenous administration can be detected in the cerebrospinal fluid. Hall (38), in a review of the literature on the subject of arsenic excretion, has shown how infrequently this substance can be demonstrated in the spinal fluid after intravenous injections of salvarsan. In his own cases, it was not found following the intravenous injection of neosalvarsan in five cases, and in only two out of six cases following salvarsan. Swift (39) obtained almost uniformly negative results in testing pooled fluids up to 100 c.c., which were withdrawn the day following intravenous injections of salvarsan, and when arsenic was present, the quantities were too small to estimate. Hall (40) has found that the intravenous injection of arsphenamin six hours after meningeal irritation by the injection of the patient's serum gave 92 per cent penetrations and resulted in an average concentration of arsphenamin three times greater than in the controls. Kaliski and Strauss (41) contend that the spinal fluid 24 hours after an intravenous injection of salvarsan contains about 0.000005 gm. of the drug per c.c., or more than can safely be introduced into the fluid in serum or otherwise. In view of the results reported by other investigators, these findings are somewhat difficult to explain. One finding which they mention, and which has also been noted by Barbat (42) and others, is the presence of arsenic in minute quantities in the majority of spinal fluids tested 24 hours after an intravenous injection of arsphenamin.

### Action of Intraspinal Injections of Salvarsanized Serum.

The amount of arsphenamin which can be safely injected intraspinally is in all probability not in itself of great value, as not more than 0.5 mg. of the drug can be added to the serum without considerable risk. The average amount of serum—15 c.c. to 20 c.c.—used in a Swift-Ellis treatment and drawn one-half hour after an intravenous injection of arsphenamin contains about 0.15 to 0.20 mg. of the drug. The minute quantities of the drug injected, even when the serum is "fortified" as in the Ogilvie method, are insignificant as compared with the amount of arsphenamin required to be of any therapeutic value in the intravenous administrations. Following an intravenous injection the arsphenamin rapidly disappears from the circulation, probably being fixed by the tissue cells, and is absent at the end of four hours.

What mechanism brings about the beneficial results? It is not definitely known, but several theories have been advanced. (1) The inactivated autosalvarsanized serum is definitely spirochaeticidal; this has been demonstrated by several investigators. (2) Although the syphilitic antibodies are not directly demonstrable, it is reasonable to suppose that they exist. The serum of salvarsan-treated patients has a curative effect when injected subcutaneously into infants with congenital syphilis, or into the subjects of acquired syphilis (39). (3) The transitory aseptic irritation produced by the intraspinal injections of the serum may be of local therapeutic value. The condition produced is supposed to simulate Bier's hyperemia. (4) Paulian (43), in a recent article, suggests that the therapeutic value of serum salvarsanized **in vivo** and injected intraspinally may be due to an increase in the total nitrogen content, which reaches its maximum 24 hours after an intravenous injection of salvarsan.

Whether the efficacy of the intraspinal method of treatment depends on (a) the spirochaeticidal action of serum; on (b) the presence of syphilitic antibodies; on (c) the irritative action of the serum; or on (d) the increase in the total nitrogen content of the serum, remains to be determined. It has been demonstrated, however, that intraspinal serum therapy is decidedly more efficacious than simple spinal drainage, all reports to the contrary notwithstanding. The advocates of the drainage method speak in the most general terms of improvement and fail to furnish proof of any permanent change in the spinal fluid, except, perhaps, minor variations in the cytology. Fordyce (11) has examined a number of cases previously subjected to spinal drainage, but aside from minor changes in the cytology of the fluid, no improvement was noted . Intraspinal treatment in several of these cases was followed by negative findings in the fluid and by clinical cures. Stokes and Osborne (44), at the Mayo Clinic, found that spinal drainage had little effect on the fluid, except to lower the cell count, and, in a very few cases, to bring about a negative globulin or a negative Wassermann reaction, but practically all of these cases were strongly positive again on their return for treatment after a "rest" period. Stokes and Osborne are of the opinion that routine intravenous treatment is as effective as routine treatment **plus drainage.**

At this point it is well to emphasize the changes that we seek to produce in the spinal fluid in the treatment of neurosyphilis. The treatment of neurosyphilis is not the administration of a few intravenous injections of salvarsan or neosalvarsan with possibly a course of mercury and iodides. Each case presents a slightly different problem and must be considered individually. In treating syphilis of the nervous system, one finds that some cases respond more rapidly than others, hence it is impossible to determine in advance the amount of treatment required. The main object in all cases is to render the spinal fluid negative in all its phases. i. e., to produce a normal cell count, globulin content, a normal gold curve if possible, and, most important of all, a negative Wassermann reaction. In regard to the gold curve, I wish to state that this test, according to the findings of Ayer

(45), Warwick and Nixon (46) and others, while of very definite value in the initial diagnosis, is frequently of no value in treated cases either for diagnosis or prognosis, and has been found not to parallel clinical symptoms.

I do not mean to imply that a normal spinal fluid indicates that no further damage is being done. I do state most emphatically, however, that as long as the cerebrospinal fluid gives evidence of the presence of a specific pathological process the special therapeutic measures which are available should be employed. One is guilty of gross negligence in discontinuing the treatment before the spinal fluid becomes normal or, at least, before intraspinal therapy has been given a fair trial; observations of the fluid should be continued after the discharge of the patient so that treatment may be resumed at the first evidence of a relapse. Fluids remaining negative for two years usually indicate a permanent cure or arrest of the disease, as the case may be. Insufficient treatment in general syphilis is almost as bad as none at all; the organisms deposited in the meninges during the period of spirochaetemia are usually destroyed, but in some cases they remain latent, only to become active after a period of months or years (31). It has been stated that a single course of treatment seemed to increase the liability to the cerebrospinal form of the disease.

The treatment of paralytic dementia by any form of therapy has been very disappointing. It is possible that the spirochaetes are so firmly and deeply imbedded in the brain substance that specific remedies fail to reach them in sufficient quantities to eradicate them completely. Then, too, the tissue is damaged beyond repair; arrest of the process is the best one can hope for. Clinical improvement is noted in a large number of cases, and in a few of them there is marked change in the cerebrospinal fluid, but with corresponding amounts of treatment this response is much less marked than in other forms of neurosyphilis. Swift (31) has observed this in a number of cases and, furthermore, has noted that there is a decided tendency for pleocytosis and Wassermann reaction to increase in intensity when treatment is discontinued; with each relapse the response to treatment is less marked. Swift observes that as the paretic process grows older, it is less amenable to treatment; this probably explains the difference in results from State hospitals for the care of the insane, and those from private physicians. Temporary improvement enabling a paretic to return to his business, even if it is only for six months or a year, is often of vital importance to his family, therefore I am of the opinion that even in paresis the intraspinal method of treatment should be tried.

It feel that it is pertinent to comment on the usual method of making the Wassermann test on the spinal fluid. The common tendency is to report the Wassermann reaction as four plus, three plus, two plus, one plus, or negative, but this means little unless the amount of the fluid used in the test is known. This is of great importance in estimating the effect of treatment. If a small amount of fluid, 0.2 to 0.4 c.c. has been used, relatively mild treatment may change the reaction to negative; on the other hand, if 1 c.c. to 2 c.c. have been used, a more intensive course of treatment may not effect the reading, although in reality the reaction may be much weaker. Testing the fluid with diminishing amounts corresponding to values between 2 c.c. and 0.2 c.c. (2 c.c., 1 c.c., 0.6 c.c., 0.4 c.c., and 0.2 c.c. being used) in the original Wassermann test and determining the point at which the reaction is completely positive is the only available means of accurately determining the effect of treatment. Unfortunately this technic is rarely followed in the laboratories.

### E. L. V. TABES DORSALIS

| Date 1920-21 | Blood Wassermann | | CEREBROSPINAL FLUID | | | TREATMENT | | |
|---|---|---|---|---|---|---|---|---|
| | Chol. | Acet. | Cells | Globulin | Wassermann | Intraven. Neosalvarsan. | Intraspinal Serum | Mercury Intramuscularly |
| Oct. 13 | ++++ | ++++ | 7 | — | ++++ ++++ | 0.9gm. | 15 c.c. | Hg. Sal. gr. i |
| Oct. 27 | ++++ | ++++ | 3 | — | ++++ ++++ | 0.9gm. | 15 c.c. | Hg. Sal. gr. i |
| Nov. 12 | ++++ | ++++ | 4 | — | ++++ ++++ | 0.9gm. | 15 c.c. | Hg. Sal. gr. i |
| Dec. 10 | ++++ | ++++ | 7 | — | ++++ ++++ | 0.9gm. | 15 c.c. | Hg. Sal. gr. i |
| Dec. 26 | ++++ | ++++ | 4 | — | ++++ ++++ | 0.9gm. | 15 c.c. | Hg. Sal. gr. i |
| | | | | | | | | Mercury Oxycyanide Intravenously |
| Mar. 11 | ++++ | ++ | | + | not rep'td | 0.9gm. | 15 c.c. | 5 mgm. |
| Mar. 25 | ++++ | ++ | 4 | + | ++++ ++++ | 0.9gm. | 15 c.c. | 5 mgm. |
| Apr. 8 | — | — | 6 | + | ++++ ++++ | 0.9gm. | 15 c.c. | 5 mgm. |
| Apr. 23 | | | 5 | — | ++++ ++++ | 0.9gm. | 15 c.c. | 5 mgm. |
| May 8 | — | — | 5 | — | ++++ ++++ | 0.9gm. | 15 c.c. | 5 mgm. |
| May 27 | | | 6 | — | ++++not rep'td | 0.9gm. | 15 c.c. | 5 mgm. |
| July 9 | | | 8 | — | — — | 0.9gm. | 15 c.c. | 5 mgm. |
| July 23 | — | — | 3 | — | — — | 0.9gm. | 15 c.c. | 5 mgm. |
| Aug. 13 | — | — | 10 | — | — — | 0.9gm. | 15 c.c. | 5 mgm. |

CASE I. TABES DORSALIS. Man, 31, married, tobacco roller. Syphilis nine years ago.

Symptoms: For four years pains in the legs and difficulty in walking. Argyll Robertson pupils. Marked Rombergism. Absent knee jerks.

Treatment: Before admission to hospital in October, 1920, patient had received six intravenous Neosalvarsan treatments followed by spinal drainage, but his condition was not improved. From October 13 1920 to Dec. 26, 1920 patient received five Swift-Ellis treatments followed by intramuscular injections of gr. i mercury salicylate. Patient showed definite clinical improvement and was able to cast aside his cane in walking. From March, 1921 to May, 1921, the patient received six intraspinal treatments and six intravenous injections of 5mg. of oxycyanide of mercury. He stated that he felt like a new man. During the past two months he has received three more intraspinal treatments. Patient was able to return to work after the first "course" of treatment and has not lost any time since then.

Cerebrospinal fluid: Oct. 13, 1920: Cells 7, globulin, 1 Wassermann four plus, both antigens; serum four plus, both antigens, July 23, 1921: Cells 10, globulin, —, Wassermann neg., blood Wassermann negative.

This patient has a marked optic atrophy of the left nerve.

### W. P. 37. CEREBROSPINAL SYPHILIS, 8 MONTHS; SYPHILIS 20 YEARS EARLY PARESIS.

| Date. 1921 | Blood Wassermann | | CEREBROSPINAL FLUID | | | TREATMENT | | |
|---|---|---|---|---|---|---|---|---|
| | Chol | Acet. | Cells | Globulin | Wassermann | Intraven. Neosalvarsan. | Intraspinal Serum | Mercury Oxycyanide Intravenously |
| Feb. 8 | ++++ | ++++ | 82 | ++ | ++++ ++++ | 0.9gm. | 15 c.c. | 5 mgm. |
| Feb. 25 | | | R.B.C. | R.B.C. | ++++ ++++ | 0.9gm. | 15 c.c. | 5 mgm. |
| March 28 | | | 23 | ++ | ++++ ++++ | 0.9gm. | 15 c.c. | 5 mgm. |
| April 18 | | | 12 | ++ | ++++ ++++ | 0.9gm. | 15 c.c. | 5 mgm. |
| May 7 | | | 10 | + | ++++ ++++ | 0.9gm. | 15 c.c. | 5 mgm. |
| May 28 | ++++ | ++++ | 9 | + | ++++ ++++ | 0.9gm. | 15 c.c. | 5 mgm. |
| July 7 | | | 8 | — | ++++ ++++ | 0.9gm. | 15 c.c. | 5 mgm. |
| July 23 | — | — | 10 | — | ++++ ++++ | 0.9gm. | 15 c.c. | 5 mgm. |

CASE II.—CEREBROSPINAL SYPHILIS. Man, married, aged 37, night watchman. Syphilis 20 years ago.

Symptoms: Weakness of right arm and leg for seven months; headache; difficulty in walking. Patient has fallen down several times. Speech. Exaggerated reflexes; Babinski. Moderate Romberg. Sluggish pupils.

Treatment: Admitted to hospital for first time Feb. 8, 1921. From Feb. 8, 1921 to July 23, 1921, eight combined intravenous and intraspinal treatments with the usual intravenous injections of 5 mg. of oxycyanide of mercury. Potassium iodide in increasing doses.

Cerebrospinal fluid: Feb. 8, 1921: Cells 82, globulin two plus, Wassermann four plus both antigens. Blood Wassermann four plus both antigens. July 23, 1921: Cells 10, globulin negative, Wassermann four plus both antigens. Blood Wassermann negative.

Course: Rapid clinical improvement. Able to return to work after first treatment. Scanning speech practically gone.

| Date. | Blood Wassermann | | CEREBROSPINAL FLUID | | | | TREATMENT | | |
|---|---|---|---|---|---|---|---|---|---|
| 1921 | Chol | Acet. | Cells | Globulin | Wassermann Chol. | Wassermann Acet. | Intraven. varsan. | Intraspinal Serum. | Mercury |
| Feb. 15 | ++++ | ++++ | 900 | ++ | ++++ | ++++ | 0.6gm. | 10 c.c. | Hg. Sal. gr. i |
| Feb. 23 | | | 720 | ++ | ++++ | ++++ | 0.6gm. | 10c.c. | Hg.Oxycyan gr.i iv |
| March 2 | | | 966 | ++ | ++++ | ++++ | 0.9gm. | 10c.c. | Hg.Oxycyan gr.i iv |
| March 9 | | | 150 | ++ | ++++ | ++++ | 0.9gm. | 25c.c. | Hg.Oxycyan gr.i iv |
| March 17 | | | 25 | + | ++++ | ++++ | 0.9gm. | 15c.c. | Hg.Oxycyan gr.i iv |
| March 31 | | | 30 | — | ++++ | ++++ | 0.9gm. | 20c.c. | Hg.Oxycyan gr.i iv |
| April 18 | +++ | + | 14 | — | ++++ | ++++ | 0.9gm. | 20c.c. | Hg.Oxycyan gr.i iv |
| May 3 | ++++ | — | 6 | — | ++++ | ++++ | 0.9gm. | | Hg.Oxycyan gr.i iv |
| May 16 | +++ | — | 9 | — | ++++ | ++++ | 0.9gm. | 20c.c. | Hg.Oxycyan gr.i iv |
| July 2 | | | 7 | — | ++++ | +++ | 0.9gm. | 12c.c. | Hg.Oxycyan gr.i iv |
| July 29 | — | — | 6 | — | | | 0.9gm. | 15c.c. | Hg.Oxycyan gr.i iv |

CASE III.—BASILAR MENINGITIS OF SPECIFIC ORIGIN. Woman, widowed, aged 32, housewife. Syphilis denied.

Symptoms: Drowsiness for ten days; severe frontal headache for four days; spots before eyes and vomiting for past two days; diplopia. Examination revealed hyperactive reflexes with suggestion of a Babinski; moderate rigidity of neck; bilateral optic neuritis. Temp. normal, pulse 66.

Cerebrospinal Fluid: On admission Feb. 15, 1921; Cells 900, globulin two plus, Wassermann four plus both antigens. Blood Wassermann four plus both antigens.

Treatment: An intravenous injection of 0.6 gm. of neosalvarsan and 5 mg. oxycyanide of mercury given, but one week later and cell count was 960. An intraspinal treatment following 0.9 gm. Neo. and 5 mg. oxycyanide intravenously then administered; one week later the cell count had dropped to 150. Since Feb. 15th the patient has received eight combined intraspinous and intravenous treatments and two simple intravenous neosalvarsans. She has improved symptomatically; the optic neuritis has almost completely cleared up. The spinal fluid cell count July 29th was 6, globulin negative, Wassermann four plus, cholesterin antigen and three plus acetone antigen. The blood Wassermann is negative with both antigens.

### A. S. H.—Age 52. PARESIS

| Date. 1921 | Blood Wassermann Chol | Blood Wassermann Acet. | CEREBROSPINAL FLUID Cells | Globulin | Wassermann Chol. | Wassermann Acet. | TREATMENT Intraven. Neosalvarsan. | Intraspinal Serum. | Mercury Oxycyanide Intravenously |
|---|---|---|---|---|---|---|---|---|---|
| June 15 | +++ | — | 9 | + | ++++ | ++++ | | | 5 mg. |
| June 18 | | | | | | | 0.6gm. | | 5 mg. |
| June 21 | | | | | | | 0.6gm. | | 5 mg. |
| June 23 | | | | | | | | | 5 mg. |
| June 27 | | | | | | | 0.9gm. | | 5 mg. |
| June 30 | — | — | 8 | + | ++++ | ++++ | 0.9gm. | 15 c.c. | 5 mg. |
| July 16 | — | — | 5 | + | ++++ | ++++ | 0.9gm. | 15 c.c. | 5 mg. |
| Aug. 1 | — | — | 3 | — | ++++ | ++++ | 0.9gm. | 15 c.c. | 5 mg. |
| Aug. 15 | — | — | 7 | — | Anticomplementary | | 0.9gm. | 15 c.c. | 5 mg. |
| Aug. 29 | — | — | 24 | — | ++++ | ++++ | 0.9gm. | 15 c.c. | 5 mg. |

CASE IV.—PARESIS. Man, aged 52, married, traveling salesman. Syphilis denied.

Symptoms. Patient dates his trouble from an automobile accident; since that time he has been very nervous. Admits no trouble except nervousness. Marked euphoria. Examination revealed unequal, fixed pupils; hyperactive reflexes; disorientation.

Cerebrospinal Fluid: June 16, 1921: Cells 9, globulin one plus, Wassermann four plus both antigens. Blood Wassermann three plus cholesterin, negative acetone.

Treatment: Three intravenous neosalvarsans and four intravenous administrations of oxycyanide of mercury between June 15 and June 27 after which the blood Wassermann was negative but the spinal fluid remained unchanged. Since June 30 the patient has received five combined intravenous and intraspinous neosalvarsan treatments, and six intravenous injections of oxycyanide of mercury. At the present time the blood Wassermann is negative; the spinal fluid shows a cell count of 24, trace of globulin and positive Wassermann reaction. The rise in the cell count is difficult to explain but some syphilologers have reported a temporary increase in the cell count following the first few intraspinous treatments. Symptomatically the patient has shown considerable improvement; he is now able to walk about unassisted and is clearer mentally. I feel that he has been definitely helped by the intraspinous therapy.

### L. B. 54. TABES DORSALIS—NEUROPATHIC ARTHRITIS.

| Date. 1921 | Blood Wassermann Chol | Blood Wassermann Acet. | Cerebrospinal Fluid Cells | Cerebrospinal Fluid Globulin | Cerebrospinal Fluid Wassermann Chol. | Cerebrospinal Fluid Wassermann Acet. | Treatment Intraven. Neosalvarsan. | Treatment Intraspinal Serum. | Treatment Mercury Oxycyanide Intravenously |
|---|---|---|---|---|---|---|---|---|---|
| March 6 | — | — | 7 | + | — | ++++ | 0.9gm. | 15 c.c. | 5 mgm. |
| March 13 | | | | | | | 0.9gm. | | 5 mgm. |
| March 20 | | | 10 | ++ | — | ++++ | 0.9gm. | 15 c.c. | 5 mgm. |
| March 27 | | | | | | | 0.9gm. | | 5 mgm. |
| April 4 | | | 6 | ++ | ++++ | ++++ | 0.9gm. | 15 c.c. | 5 mgm. |
| April 10 | | | 5 | | ++++ | ++++ | 0.9gm. | | 5 mgm. |
| April 17 | | | 5 | + | +++ | ++ | 0.9gm. | 15 c.c. | 5 mgm. |
| May 1 | ++ | — | | | | | 0.9gm. | 15 c.c. | 5 mgm. |
| May 16 | — | — | 7 | — | — | — | 0.9gm. | 15 c.c. | 5 mgm. |
| June 14 | | | 9 | — | — | — | 0.9gm. | 15 c.c. | 5 mgm. |
| Aug. 1 | + | — | | | ++ | + | 0.9gm. | | 5 mgm. |

CASE V.—TABES DORSALIS: NEUROPATHIC ARTHRITIS. Woman (b) aged 54 married, practical nurse. Syphilis twenty years; locomotor ataxia for fifteen years.

Symptoms: Left knee began to swell five months before admission; right knee slightly enlarged for three months; pain in both legs, difficulty in walking. Fixed pupil left eye, rt. eye artificial: swelling and crepitation in both knee joints; absent patellar reflexes; Romberg present.

Cerebrospinal Fluid: On admission March 6, 1921: Cells 7, globulin negative, Wassermann—Chol. neg. acetone four plus. Blood Wasserman negative both antigens.

Treatment: From March 6 to Aug. 1 the patient received six combined intravenous and intraspinous neosalvarsan treatments, four simple intravenous neos. and eleven intravenous injections of oxycyanide of mercury. The effect of the treatment may be observed in the accompanying table.

This case vividly illustrates the futility of any sort of treatment in tables accompanied by Charcot's joints. In addition to the joints mentioned above both ankle joints are beginning to show changes.

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In selecting these cases I have endeavored to select one from each group; I feel that they are fairly typical. From a statistical standpoint, our series of cases is not of great value, the number being too small, but I think that one can gain some idea of the effects of intraspinal therapy. In the treatment of neurosyphilis we attempt (1) to cure the disease, (2) to relieve the symptoms, and (3) to prolong life. Except in cases of paresis and advanced tabes, all of these may be accomplished in the large majority of cases. If by ordinary means of treatment we ameliorate the symptoms and prolong life, we are guilty of gross neglect in failing to attempt to cure the disease by intraspinal therapy.

## Conclusions.

1. Syphilis of the nervous system is a curable disease.

2. No case of general syphilis should be pronounced cured untl a complete examination of the cerebrospinal fluid has been made.

3. Intraspinal serum therapy should not be attempted, except in selected cases, until the ordinary methods of treatment have been given a thorough trial.

4.. Syphilitic involvement of the central nervous system may occur in the primary and secondary stages as well as in the tertiary.

5. Serum salvarsanized **in vivo** has a definitely spirochaeticidal action, and is as efficacious and far safer than sera medicated **in vitro**.

Spinal drainage following the intravenous administration of salvarsan or neosalvarsan has little, if any, advantage over simple intravenous therapy.

7. From the standpoint of treatment each case of neurosyphilis presents an individual problem.

8. Cases of early meningitis, later forms of neurosyphilis of the exudative type (cerebrospinal), and tabes offer the best prognosis. The treatment of paresis by any method has thus far been very discouraging. It is futile to attempt to influence symptoms produced by pressure or interference with nutrition.

9. The strength of the Wassermann reaction in the spinal fluid should be titrated, otherwise it is impossible to judge accurately the effect of treatment on the reaction.

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# LACERATION OF THE CERVIX.*

By Lucius E. Burch, M. D., F. A. C. S.,
Nashville.

Laceration of the neck of the womb is a very frequent occurrence. G. Brown Miller, in Bovee's Practice of Gynecology, states that it is met with probably oftener than any other gynecological disturbance. Fifteen to twenty years ago the medical literature teemed with articles on this subject, all laying especial stress on the reflex symptoms that were produced by this condition. In the last five or ten years, very little has been said on this subject, this being due to the fact that so many new and interesting problems have arisen in surgery that this common condition has been overlooked. It is strange that an injury so general as this one was not recognized until 1862, when Emmett performed his first operation for its relief. It is also interesting to note that the operation that he then performed is still regarded as the best by the most modern gynecologists. My only plea for writing on this common topic is to lay especial emphasis on its relation as an etiological factor in the production of cancer of the cervix.

All authorities in the past have said that cancer of the cervix is rarely seen in women who have not borne children or had a laceration of the cervix. Emmett states that in his whole experience, he had never seen but one case of cancer of the cervix in a nullipara, and she had had a forcible dilatation. A study of the record of the large clinics will show that cancer of the cervix in the nullipara is not considered at the present time a medical curiosity, or as rare as the statistics of Emmett would lead one to believe. In my own limited experience in the last two years, I have operated on two cases of cancer of the cervix in nullipara. In both of the cases, however, there was a history of gonorrhea with severe endocervicitis.

The main etiological factor of laceration, of course, is child-birth. Ashton, in his Text Book on Gynecology, states that "the chief cause of cervical tears is meddlesome obstetricians, for example, want of care or judgment in the use of forceps, premature rupture of the bag of waters, the injudicious use of ergot, mechanical dilatation of the cervix, roughness in performing podalic version. These causes are avoidable, as a rule, and should be borne in mind in order to reduce to a minimum the frequency of cervical lacerations." I can not take the radical stand of Ashton and place the entire blame on the obstetrician. I am of the opinion that almost every woman suffers from a tear of varying degree with her first labor. Fortunately, the majority of these cases heal by first intention, and give no further trouble.

The pathology of the tears that fail to heal is so well understood by the profession that details are not necessary. Eversion and erosion are the most constant after-results of unhealed lacerations. Occasionally a cystic degeneration of the glands of Naboth is the outstanding feature, while in other cases the most marked after-effect is a sclerosis of the whole cervix. Cervical lacerations are nearly always associated with other pelvic pathology, such as relaxation of the vaginal outlet, displacement or subinvolution of the uterus, or disease of the adnexa. A number of these is the result of cervical lacerations.

This condition, therefore, has no pathognomonic symptoms, the outstanding symptoms being usually produced by the results of the laceration rather than the laceration **per se.** The older writers laid great stress on reflex symptoms, and while these do occasionally occur, they are not nearly so common as most of us were taught to believe. Increased vaginal discharge, menstrual disorders, and backache are the symptoms most often found. The condition is easily diagnosed by digital ital and speculum examination. Some of these cases may be overlooked in a hurried examination by relying on digital examination alone.

**Treatment.**—In my opinion, every case of laceration of the cervix that shows either an erosion, an eversion, a cystic degeneration or a sclerosis should be operated on, not only for the purpose of relieving the laceration, but also as a preventive of cancer. I have never seen cancer developed in a cervix that had been operated on, and on inquiry among my friends, have found their experience to be similar to mine.

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*Read at Annual Meeting of Tennessee State Medical Association at Nashville, April, 1921.

In order to check this up, I am investigating this among the largest clinics in the country. At the present time, I am able to report on 564 cases of carcinoma of the cervix from the Mayo clinic, this report being due to the courtesy of Dr. Walter E. Sistrunk. In this series of 564 cases of carcinoma of the cervix only four had developed cancer following repair of the cervix. In eight cases the condition had developed following some type of amputation of the cervix.

The best operation for the relief of the majority of these cases, during the child-bearing period, is trachelorrhaphy, an operation devised by Emmett anl the name given to it by E. C. Dudley,, of Chicago. Circular amputation of the cervix, during the child-bearing period should studiously be avoided, if possible. Leonard, in a study of 128 cases of cervical amputations in Howard Kelly's Clinic, found from post-operative histories that five per cent presented serious postoperative hemorrhage; ten per cent suffered from a decided augmentation of a pre-existing menorrhagia or dysmenorrhea. Four-fifths of the women in whom pregnancy might reasonably have been anticipated to follow the operation remained sterile. On the other hand, fifty per cent of the pregnancies occurring after amputation terminated prematurely while among the few which progressed to full time even a larger proportion experienced difficult or prolonged labor.''

According to the statistics from the Mayo Clinic as given me by Sistrunk, carcinoma of the cervix was found in only four cases following trachelorrhaphy, and in eight following amputation. If an amputation is necessary, I strongly advocate a high one at the level of the internal os.

In conclusion I wish to emphasize the following:

1. All cases of laceration of the cervix with eversion, erosion, cystic degeneration or sclerosis should be operated upon.
2. The operation of choice during the child bearing period is trachellorhaphy.
3. Should trachelorrhaphy be contra-indicated during the child-bearing period on account of extensive sclerosis or cystic degeneration, the Schroeder operation or the Sturmdorf tracheloplasty should be carried out.
4. After menopause all cases that demand operation should have a high amputation of the cervix.

## DISCUSSION.

Dr. Harlin Tucker, Nashville: Dr. Burch is certainly correct in stating that all lacerations should be corrected. He might have put more emphasis upon the fact that we do have endocervitis in practically of these cases of laceration of the cervix due to eversion and infection from the vaginal secretions involving the deep racemose glands and the endocervical tissue. My suggestion would be in all case in which he thinks repair of the cervix should be done, the operation should be combined with some measure to relieve the leucorrheal discharge, and the endocervical inflammation. While cancer of the cervix is undoubtedly the most dangerous condition to involve that region, on the other hand, leucorrhea is certainly one of the most discomforting and one of the greatest sources of trouble to the female, as a rule. I believe in a routine rather than in making an exception to it, and if he will combine repair with dissection of the endocervical tissues in which he then replaces the raw surface and covers it with the mucous membrane from the vaginal aspect of the cervix, he will come more nearly relieving these cases in which there is leucorrheal discharge than in any other way, and in my opinion, if you will do this operation, you do not cause as much trouble in your repair afterwards as you would a high or low ordinary amputation.

Dr. William S. Anderson, Memphis—I heartily agree with Dr. Burch that some form of operation should be adopted in the cases of laceration of the cervix where we have eversion and erosion or some type of degeneration. If the woman is in the child-bearing period, I think this operation should often be postponed until that age in life has arrived, and then some type of operation, either a regular trachelorrhaphy or a new operation that has been adopted by Dr. Sterndorf, recently mentioned by the previous speaker, should be adopted, for the reason, as the doctor has brought out in his paper, these cases are prone more or less to degeneration and the subsequent formation of cancer.

I find in my own work in taking the histories of these cases I so far have never seen a case of cancer of the cervix in a nullipara, all of them having given birth to two or more children, with a history of having had laceration of the cervix. So if we want to improve and try to eradicate as much as possible the formation of this cancerous cervix, my advice is always, especially after the child-bearing period, that some form of operation in the way of repair of the cervix be adopted. I find in these cases, where there has been some involvement, not only of the cervix, but of the endotrium, where they are troubled with subsequent leucorrhea or menorrhagia, small doses of radium will frequently rectify that.

One point brought out by Dr. Barr in his paper I think is excellent. I have found in dissecting up the tongue of mucous membrane, frequently we find where there has been so much scar tissue it is extremely difficult at times. So as he has brought out, if we know the tissues, they lie as the shingles on a house, by going above and dissecting downward that will probably be quite an advantage. I have never tried it, but will take occasion to do so when the first opportunity presents.

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Dr. William T. Black, Memphis.—I wish to agree with practically everything that has been said in the paper. There is no doubt but what all lacerations of the cervix, no matter how small, should be repaired, if for no other reason than to prevent the development of cancer. If we know anything of cancer, we know it is due to chance irritation, and we know further that most of these cases have endocervicitis following laceration with eversion of the mucous membrane, often changing the reaction of the secretions. The secretions of the cervix, instead of being alkaline, are changed to an acid medium, and not only produce irritation, but may cause later in life sterilty. It does not make any difference whether the woman is in the child-bearing period or not, the laceration should be repaired. We should not wait until after the child-bearing age to repair the tear. I probably misunderstood the speaker in that respect. In the child-bearing period there is no doubt repair of the cervix by a trachelorrhaphy is the operation of choice. Amputation of the cervix should not be performed in the child-bearing period if it is possible to prevent it. We often have sterility and painful menstruation, resulting from an amputation, and often when a patient does become pregnant, she aborts or has a painful labor, sometimes Caesarean section has to be performed. I have known of a few cases where we have done high amputation of the cervix without trouble during labor. If a patient has passed the child-bearing period, amputation of the cervix is the operation of choice, because we have a diseased endocervix, and we know the woman is approaching also the dangerous period of her life for the production of cancer. If the cervix is badly torn, the Sterndorf operation is not applicable, but if the tear is small, the Sterndorf operation is a beautiful procedure. Especially should this type of operation be performed where you have to do the amputation during the child-bearing period; because it has been proven to interfere less with pregnancy, and with the confinement if the woman becomes pregnant afterward.

Dr. Burch's report of eight per cent of cancers occurring after amputation of the cervix, and only four cases occurring after trachelorrhaphy is a rather peculiar coincidence in my mind, due to the fact that we have over two-thirds of cancer of the cervix, and Bland Sutton states that 98 per cent of the cancers of the cervix develop from the squamous epithelial cells. We have the same type, whether you do amputation or repair of the cervix. This perecntage of only eight, after amputation of the cervix, and only four after repair of the cervix, is a point I would like to have Dr. Burch explain in closing the discussion.

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Dr. W. O. Floyd, Nashville.—In reference to the question asked by Dr. Black, I will say that it strikes me that the reason for the reported greater number of malignancies developing upon amputations rather than upon cervices in which repair had been done, is probably due to the fact that some of these amputations, possibly all of them, were done after carcinoma had already developed, probably unrecognized, and the entire area of carcinomatous tissue was not removed at amputation, therefore these patients probably had a recurrence rather than a development, following amputation. I think this to be the most probable explanation.

I agree with Dr. Burch that undoubtedly traumatism plays an important part in the development of carcinoma of the cervix. I remember that out of several hundred cases of malignancy reported by us last year that had come under our observation during the past four years that 67 of them were cancer of the cervix, and that there were only two cases in this group of 67 that had not borne children, which bears out the point that the great majority of these malignancies develop post-traumatic, but not necessarily all of them, as Dr. Burch has pointed out.

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Dr. Burch (closing).—The paper of Dr. Barr is an excellent one, and the operation that he has suggested in his paper is easily performed, and should obtain good results. I should especially like to commend his suggestion of starting the flap at the top and bringing it down and also his mucous membrane suture.

There are a number of points in regard to the pathology of lacerations of the perineum that I could disagree with him on, but those are points that are not of interest to the general practitioner and play but little if any part in the treatment.

I thought that Dr. Floyd answered the question in regard to the report that Dr. Sistrunk of the Mayo Clinic was kind enough to send me. In the 556 cases that he tabulated, eight of them showed cancer following amputation of the cervix. I think it is likely that a low amputation was done in the majority of these cases, although that is purely a suppostion. No doubt a number of these amputations were poorly done, and it is likely that some squamous epithelium was left. I do not think that statistics will bear out Dr. Black's statement that ninety-eight per cent of cancers of the cervix are of the epitheliomatous type. It is true that they are much more common than the adenocarcinoma of the cervix. I am of the opinion, from a careful study of the subject, that the best operation for the ordinary case of laceration of the cervix is trachelorrhaphy, an operation that was originally brought out by Emmett. I occasionally use the Sterndorf operation, but I do not think it compares with trachelorraphy, so far as results are concerned n the ordinary case. I should like to make one suggestion in regard to the Sterndorf operation that I learned from Dr. Chipman in Montreal, Canada. Dr. Chipman suggests that the suture which brings together the mucous membrane of the vagina and the mucous membrane of the cervical canal should first be entered through the raw surface of the mucous membrane, and the vagina and then brought out on the normal surface, then it is brought back and entered on the normal surface of the mucous membrane of the cervical canal and brought out on the raw surface. I am of the opinion that this suture brings the two surfaces in better coaptation than the suture of Sterndorf.

# A REPORT OF A CASE OF EXTRA-PERITONEAL PYO-SALPINX, WITH OPERATIVE TECHNIQUE USED IN THE CASE.*

By Percy H. Wood, M. D., Memphis.

The reasons for my writing this brief paper and reporting this case are the following: first, from a mere standpoint of interest, and second, that after being connected with the University of Tennessee Gynecological Department, at Memphis, for nine years, and seeing on the average of about 1,500 gynecological patients a year in the out-patient department, many of which have been postoperative, it is the first and only one of its kind I have had the fortune or misfortune to see and operate upon. I have given no time whatever to looking up the literature on the subject, for these days there is such a volume of it that one is tempted to leave town for a week if he wishes to delve into the tremenduous depths. If there are other colleagues of mine here who have also come upon one of these cases, they will agree with me that the condition was certainly rare enough to excuse this poor attempt of mine to portray it, and I sincerely hope that it will not fall to my lot to have to operate on a similar case with a history as unfortunate as this one presented.

I am not going into a boresome technical history, but will state facts as briefly as possible. On January 18th, 1921, Mrs. W., white, age 23, walked into my office complaining of pain and frequency of urination, with severe cramp-like pains in the lower abdomen, which had been present for the last two to three months. Previous to this her gynecological history was negative, except for a most severe dysmenorrhea dating back three years, at which time she had a ventral suspension done to relieve her of a continuous backache brought on, so her physician stated, by a retrodisplacement. She stated that at the time of her operation, in order to prevent future pregnancies, she was rendered sterile by having both fallopian tubes ligated with chromic cat-gut "forty days old." She stated that she was also suffering at present from a leucorrhoeal discharge which she had noticed for about the last two months. Menstruation was regular, but lasted anywhere from eight to fourteen days. Her last period lasted almost two weeks, and was accompanied by many large clots, and with most severe pain.

Her marital history showed her to be the mother of four healthy children; the last one six years old. All her labors were normal and non-instrumental. She had never suffered a miscarriage.

Her past medical and family history were practically negative, and showed no relation to present condition.

Physical examination of the thorax and upper abdomen were negative; however, her heart sounds were rather rapid, probably due to nervousness while under examination, and due to temperature, which at the time was 100.5. Skin, glands, and nervous system were negative to examination.

Lower quadrant of abdomen was rather rigid, showing old scar in good condition and no bulging or retraction present. There was extreme tenderness over left iliac region especially marked, extending from the middle third of scar externally about two and one-half inches. There was also slight sensitiveness over the right iliac region, but patient allowed deep pressure here with palpating hand, but did not permit even gentle palpation to the left of scar.

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*Read at Annual Meeting of Tennessee State Medical Association at Nashville, April, 1921.

Pin test caused no contraction or pain over right side, but caused a rapid spasm, on the left side with extreme pain, causing the patient to cry out in agony, even with most gentle contact.

Vaginal examination showed a small amount of purulent discharge at the vulva and in the vagina, with only a slight degree of hyperaemia. Cervix was in normal condition anl position, but showed signs of a more or less low grade cervicitis. Smears from the urethra, vagina and cervix were made, but **did not** show the Neisserian organism to be present; in fact, the colon bacillus predominated the picture.

The uterus was normal in size and was fairly fixed. Even the slightest manipulation of it caused anguish to the patient, especially so if pressure was made to bear to left of fundus. There was apparently no palpable mass on either side that could be detected, and the cul-de-sac was also apparently free from trouble. Rectal examination was negative. My diagnosis at this time was sub-acute salpingitis, due to some type of infection, but I confess that I was slightly perplexed. After taking her blood, I sent the patient home with the usual directions of rest in bed, ice cap to abdomen, and liquid diet. The blood report came back showing a leucocyte count of 10,000.

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| Differential count—Polyneuclear Leucocytes | 82% |
| Large lymphocytes | 14% |
| Small lymphocytes | 3% |
| Eeosinophiles | 1% |
| Red blood cells | 4,000,000 |
| Haemoglobin | 80% |

Urinalysis a day or so later was practically negative. In less than two days her temperature, rapid pulse and physical symptoms had practically disappeared

Patient walked into the hospital on January 29th, in good condition. Her temperature and pulse had been normal over a week, and since her leucocytes and differential counts were now normal, I felt she had sufficiently "cooled off" for me to be able to proceed with more radical measures, as she still complained of pain and tenderness over the lower abdomen.

On the morning of January 31st, I operated. The intestinal tract was emptied by simple enemas, both on the night previous to, and the morning of operation. After the patient was sufficiently under nitrous oxide ether, the vagina and cervix was swabbed thoroughly with silvol solution of about 25 per cent—a routine I have found most valuable in all complete hysterectomies. Following this, I made my incision just a little to the left of her old cicatrix, and immediately on the first amount of pressure, the second scalpel came abruptly upon pus, yellow and plenty of it. Naturally at this juncture I became a trifle more deliberate, and yea, I might say, a little circumspect. After cleaning out carefully this pus-pocket, and using iodine freely I decided to go ahead and incise the peritoneum, for I was certain I would find my focus of infection in the deeper pelvic structures. This accomplished, the coils of small intestines were pushed back gently, and kept out of the way by the usual large wet gauze sponges, and the Trendelenburg position requested.

The uterus was sustained in fairly good position, but was practically fixed by a few adhesions from each side of the fundus. The round ligaments were in their normal beds, and had never been molested, so far as I could see by the exploring hand of man. A "modified" Gilliam operation had been performed, but the Fallopian tubes were used as guy ropes instead of the usually helpful round ligaments. The ovaries were normal. Appendix had been removed.

The offending organism had gained entrance only into the left tube, which was almost entirely outside of the peritoneal cavity, lying between the posterior portion of the left rectus and its deep fascia. Peritoneum and other morphological characteristics of this tube had been destroyed during the formation of this encysted abscess.

The right tube was in fairly good condition considering its artificial position, and on inspection showed a definite constriction at its juncture with the uterus, nature fortunately not having so far opened its lumen. This tube was dissected out practically intact from below, the peritoneum and above structures being everted by my assistant. There were no signs of infection whatever about this oviduct. A pan-hysterectomy completed the operation.

In view of the said mentioned facts, absence of temperature for one week, normal pulse, and a normal leucocyte count plus the absence of hyperaemia or other acute signs of inflammation, I decided to close without drainage, leaving enough room between my superficial skin sutures for any drainage that might occur from the old abscess.

At this point I would like very much to use the garbled quotation, which we so often use, that the patient made an uninterrupted recovery, but gentlemen, this I am unable to say, for in one week the patient began to show a little temperature, and exhibited the unmistakable signs of incomplete obstruction of the intestinal tract, and was in fact a most seriously sick woman. After consulting with my colleagues, Drs. Williamson, Sanders and Gartly, it was thought best to make a vaginal puncture under nitrous oxide, and by careful blunt dissection attempt to locate a pus-pocket, if any existed. On vaginal and rectal examination no definite localization was detected; however, I made two stab wounds with a blunt instrument. I confess I had serious misgivings when I found how closely adherent the intestinal coils were, and when I did not find any free pus present. After obtaining a small specimen of dessicated yellow exudate from the region of the cul-de-sac, a soft rubber T-shaped tube was inserted and fixed. Hot fomentations were applied both day and night to the lower abdomen. The laboratory report, made by Dr. Schmittou, showed that stained smears of this exudate contained the presence of many pus and red blood cells, and a large number of intra- and extra-cellular Gram negative diplococci, which were morphologically the Neisserian organism. This was the first appearance of the diplococcus in any of the laboratory examinations made.

In about five days from date of vaginal dissection, drainage gradually became quite free. The patient's temperature slowly reached the normal, and in ten days all signs of obstruction had disappeared. From this time on her recovery was without mishap, and on March 6th, patient left hospital in good condition.

## DISCUSSION.

Dr. W. C. Dixon, Nashville.—I think Dr. Wood has presented a most interesting case, and the circumstances surrounding it are so unusual that it makes it a little difficult to discuss the condition. I think it would be extremely interesting to know whether or not the man who did the first operation on this woman used the tubes to suspend the uterus intentionally, or whether he did so through ignorance. If through ignorance, I think the fact was inexcusable. If, however, he did it purposely, I think his position was indefensible, for I do not believe the tubes by any stretch of the imagination can be considered satisfactory for use as supports to the uterus.

There is some doubt as to the value of the round ligaments in these procedures, and a structure that has no more musculature than the tubes could not be used with any degree of satisfaction or reason.

I think the doctor is to be congratulated on his handling of the case, and certainly the woman was lucky to fall into such good hands, and that she made eventually a recovery.

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Dr. J. L. McGhee, Jr., Memphis.—I simply rise to recount a case of a similar nature along the line of the case reported by Dr. Wood. His case is similar to one I had seven or eight years ago in which a surgeon confused the Barrett operation with his pulling the internal ring and over across the recti muscles, suturing them together in front, using the tubes instead of the round ligaments. This was not done intentionally, but unintentionally, as I was informed afterward. I re-operated this patient because of continuous pain and discomfort and for evidences of pelvic pathology, the exact cause of which was not definitely determined beforehand. This patient did not develop pyosalpinx, but the length of the tube, when finally dissected loose, was something like twelve inches long, that is, from the inguinal canal, and taking it off at the cornu of the uterus, it made a tube twelve or fourteen inches long. In his case, Dr. Wood had subsequent Neisserian infection. However, I do not understand that he performed hysterectomy, and in his rejoinder I would like to know if he did hysterectomy in the case reported.

In view of the said mentioned facts; absence

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Dr. J. F. Gallagher, Nashville.—I feel very much like Dr. Dixon, that this case reported by Dr. Wood is so unique that it is difficult to say anythng about the particular part that he played in the procedure. In hearing him read the paper and describe the case in detail, I thought of one or two lessons that might be learned from the pernicious type of surgery this patient was previously subjected to. I think it is well for us to remember that retroversion of the uterus is not often a condition that produces symptoms. It is entirely wrong to believe that retroversion of the uterus produces backache.

I think it is agreed that at least one-quarter of women have retroversion of the uterus and they are symptomless.

I think in considering backache in a woman the first thing we should think of is an orthopedic condition, namely, sacroiliac strain, rather than pain produced by the retroversion.

The second point is that the previous surgery was pernicious in that this operation was performed to effect sterility. If we will keep those two things in mind, we should take these lessons home to remind us that it is only on the rarest occasion that operation should be performed for either one of these conditions.

The point Dr. McGehee raised about doing hysterectomy is one that is debatable; whether in a case of pyosalpinx we should simply remove the tubes and leave the uterus, and ovaries, or clean the condition up. Personally, I consider the condition of the patient, from a physical standpoint. Let us bear in mind a patient, for instance, in the dispensary service. That patient has a right, like all patients, to get well. She is dependent upon her own health and strength for her economic existence. We subject such a patient to very little further risk if both tubes and ovaries are diseased to remove the uterus. Personally I can get a better result technically after a hysterectomy is done and all raw surfaces are completely covered. If, on the other hand, it is a patient who is desirous of having children, and she is willing to take the risk, and we think of a subsequent operation, we ought to take that stand and probably the so-called conservative type of surgery may be done. Of course, it may be said that complete sub-total hysterectomy offers a greater risk. I doubt that. I think we will cure more patients with double pyosalpinx if we will do a complete hysterectomy and fashion our peritoneal flaps so as to get complete closure.

I did not hear Dr. Haskin's paper, which was read this morning, but I understand he touched on the conservation of the menstrual function. I am not one of those who believe that a woman must menstruate whether she is sterile or not; that this effect is more psychic than it is real anatomic or endocrine, if you will. The fact she does not menstruate, and if she knows both of her ovaries are out, has a wonderful effect on her psychology, whereas I believe in the vast majority of cases, if the exact facts are withheld, she will not be quite as upset in her condition.

Dr. Percy H. Wood, Memphis (closing)—I wish to thank the gentlemen for their kind discussion of the case which was very interesting to me.

In regard to the question of Dr. McGehee, the reason I removed the uterus was this: When I found she had a pus tube, I was very certain her infection came up through the uterus, and the cervix was infected also. I tried to relieve her of a leucorrhea which she was anxious to have cleared up. The other symptom which bothered her a good deal from the time of the previous operation was a severe dysmenorrhea which I am quite certain was due to the fixation of these muscular tubes from the fundus up to the abdominal wall. I am certain of this, because she never had dysmenorrhea before the previous operation. To relieve her of the dysmenorrhea and the leucorrhea, I decided to do a panhysterectomy.

There is another interesting fact about this case. I knew there was something on this woman's mind. A few days after I operated on her she said to me, "Dr. Wood, I have a little story to tell you. I know you found a lot of trouble, and I know it was caused by the previous operation." While I hedged quite a little, I was not going to blame any one. She then volunteered the information that her brother did the operation. He was a young medical graduate. She said she "was suffering from a backache, and her mother used her influence over her to let her brother do the operation, because the mother said he should have the experience first on me. (Laughter) I do not know what he did, but I am sure he tied me into a bow knot."

## NEGLIGENCE IN THE CARE OF CROSS-EYED CHILDREN.*

By Archibald Cary Lewis, M. D., F. A. C. S., Memphis.

Squint is the most common of eye deformities. Every community has its cross-eyed children, every town its cock-eyed men and women..

A squinting eye is a useless eye.. Failure to use it causes the vision to grow less and less acute, and long before the child is grown the eye is almost blind. This condition is called **amblyopia ex anopsia**, meaning blindness from non-use.

Why does the child fail to use the squinting eye when the vision in it is still good? By doing so the eyesight would be preserved in both eyes. With the eye in this faulty position, light entering it is focused on a different part of the retina from that entering the straight eye. This would naturally cause diplopia or double-vision.

Diplopia is a condition that the brain will not tolerate. If the eye muscles are unable to fuse the objects made by two eyes, and obtain binocular single vision, they soon cease to make the effort. The eye with the most acute vision, and stronger muscles assumes full visual responsibility. The other eye turns from the straight and narrow way and becomes the squinting eye. The brain quickly learns to suppress the image formed by this eye, and thus the confusion of diplopia is avoided.

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*Read at the Annual Meeting of West Tennessee Medical and Surgical Association at Paris, May, 1921.

Sometimes the vision in the two eyes and the strength of the muscles are equal. Then the patient may use first one eye and then the other, and we have what is called an alternating squint. In such cases the vision remains good in both eyes, and the squint is easily corrected by suitable eye-glasses, or a slight muscle operation, because the inclination to binocular single vision still remains.

The common causes of squint are the errors of refraction (hyperopia, myopia, astigmatism), and paralysis of one or more of the ocular muscles. Rarely it is caused by corneal opacities and intra-ocular defects.

Refractive errors are usually responsible for the crooked eyes of children. They can be corrected by carefully fitted glasses. provided they are put on the child as soon at it begins to squint. Then the vision is still good in both eyes and the desire for binocular single vision has not been lost. Two years of age is not too young to put glasses on children that need them. Even at this early age they will wear them constantly and willingly because they can see better, and their eyes feel much better with them on.

It is of the greatest importance that the glasses be prescribed by a well qualified and painstaking oculist and not by an optician. It is absolutely essential in all children that a cycloplegic be used to control the ciliary muscles before an accurate measurement of the refractive error can be made. The best opticians realize this fact and send the children on to an oculist for examination with the use of the "eye-drops." Others are not so scrupulous, and often prescribe glasses that are not only useless, but are actually injurious to the child.

Squint occurring in babies or children too young for glasses should not be neglected. If so, there is a rapid deterioration of vision in the squinting eye. This can be prevented by keeping the normal eye covered or its muscle of accommodation paralysed with atropine a part of the time. By these methods the weaker eye is forced to do some work, and the integrity of its vision is thus preserved. Atropine should also be used in older children in this way, if the glasses fail to hold the eyes in a correct position, until they are ready for operation.

Operation on the eye muscles for the correction of squint is necessary when these more conservative methods fail, or when the child is seen too late for them to be of benefit. Most authorities recommend that we wait until the child is seven years old before operating. This is a good working rule, if the child is made to use the squinting eye at times until it reaches that age. The majority of parents lack the confidence, patience, and perseverance required to carry the treatment out over a period of years. If they report for squint operation then when the child is past seven years, the eye can be straightened, but the vision is so much reduced that it probably cannot be restored to normal working relationship to the other eye.

In my experience it is not best to always wait. In several cases of internal squint of high degree where glasses have failed, I have operated at five years of age with the most gratifying results.

I will not bore you with the details of any of the numerous operations used to lengthen and shorten the ocular muscles for the correction of squint. Regardless of the operation we use, each case should be thoroughly studied before doing any operation.

The amount of vision, the variety and degree of squint, the strength of the eye muscles, and the error of refraction present must be carefully measured. With this knowledge of each case, and the exercise of an average amount of judgment and surgical skill, practically all of them can be corrected. This applies to the old as well as the young, to the squint of long standing as well as those of recent acquisition.

The paralytic squint is a different and a difficult proposition. Some can be improved by operation and many cannot Fortunately, they are not so common.

Operation for squint is without danger, either to the patient or the eye when done by a competent oculist. The patient has all to gain and nothing to lose, for the condition should never be made worse by the operation.

Loss of usefulness in an eye is not the only, nor the greatest, disadvantage resulting from squint. The deformity is an everlasting embarassment and handicap throughout life to either man or woman.

We all hate to do business with a cross-eyed man, for we want to look him in the eye when talking to him. It is most disconcerting when you cannot tell whether he is looking at you or at something across the street.

With a woman, her face is often her fortune. It is certainly a valuable asset with every woman. Is there any question but that a cock-eye is a dreadful handicap to any woman, no matter how beautiful her form or character? I am glad to be able to say that I have been instrumental in transforming several of these cross and cock-eyed old maids into beautiful and attractive housewives.

Ignorance is the principal cause of negligence in the care of cross-eyed children. It is our duty as physicians anl medical advisers to the public to instruct the parents in the importance of correcting those deformities early and of the ease and safety with which it can be done. Lack of funds to finance the poorer cases is not a valid excuse for neglecting them. The free eye clinics in all of our larger cities are always both willing and able to take care of them.

### Conclusions.

1. Squint means a loss of 50 per cent of the eyesight to the person affected

2. Squint means a deformity which is an embarassment and a handicap all through life.

3. Squint can usually be corrected by well-fitted glasses in early childhood.

4. Squint can be corrected at any age by an operation that is without danger to the patient or the eyes.

5. The free eye clinics are glad to handle all worthy cases of this character.

6. It is our duty to disseminate this knowledge, that the public may know how to go about correcting these deformities.

7. Willful negligence of these afflicted children by their parents should be punished by law.

## THE UNSEEN IN MEDICINE AND SURGERY.*

By Garnett W. Quillian, M. D., Visiting Gynecologist to Grady (City) Hospital and
St. Joseph's Infirmary.
Atlanta, Ga.

The course of human progress is marked by epochs. As we review modern history, we observe an epoch of Feudalism, which was distinctly military; an epoch of Renaissance, which was distinctly intellectual; an epoch of Reformation, which was distinctly religious and resulted in a broader tolerance in the human mind; an epoch of Revolution, which was distinctly political, and resulted in the establishment of a republican form of government, and in men that which has been the keynote of the life of Woodrow Wilson: the self reliance of democracy.

As in the course of human progress, so the history of medicine and surgery is divided into distinct epochs.

In the first and longest, the writings of Hippocrates and Galen were regarded as inspired gospel. Hippocrates was not only the father of medicine, but in recognizing the nobility of the art of surgery, he emphasized and practiced the use of all means for the examination and diagnosis of the individual patient, "for whose welfare"——as Aristotle said—"all medicine exists." He knew the difficulties of diagnosis, for said he: "Experience is difficult, verification fallible, observation long and costly, and occasion fleeting." Galen's chief claim to honor, is that he was the first physician to bring experiment to the aid of medicine. His opportunities were great, and as Hippocrates was the parent of inductive method, so Galen became the parent of the deductive. He did much original work in the cranial and sympathetic nervous system, and by severing a muscle and observing its loss of power discovered its function; he demonstrated conclusively the flow of urine from the kidneys, through the ureters to the bladder. His knowledge of anatomy was unsurpassed, and his writings were authoritative.

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*An address delivered before the East Tennessee Medical Association at Knoxville, October, 1921.

It was during this era that Harvey, through his experimental work in vivisecting, demonstrated the circulation of the blood.

During the second era in medical history, John Hunter and Morgagni established a firm foundation in pathological anatomy. This they developed in experiments performed on the cadaver. Through the influence and work of Hunter, who had an unlimited capacity for work, and was gifted in the art of observation, surgery became a science. The museum which he founded and which still bears his name in the Royal College of Surgeons of England is unsurpassed in all the world. "Don't think, try an experiment," he urged upon his pupil, and Jenner discovered vaccination. Hunter was modest and frequently remarked, "We are only beginning to learn."

Such was the progress of medicine and surgery up to the early years of the nineteenth century, when the era of the antiseptic surgery was developed. Pasteur enunciated the microbe theory, and Lord Lord Lister, as every one knows, revolutionized surgery by introducing the antiseptic system. Carlyle said of him: "The great man was always as lightning out of Heaven; the rest of men waited for him like fuel, and then they too would flame."

Lister's work, it is evident, was the result of research carried out both by the inductive and by the deductive method. He combined the methods of Hippocrates, Galen, Harvey and Hunter, and it was not an accident, but perfectly natural that the greatest of surgical discoveries were made by him. His work showed conclusively that clinical research and experiment cannot work independently in medical and surgical progress.

On March 30th, 1842, Crawford W. Long, a man modest, refined and retiring, in a little town in Georgia, 130 miles from the nearest railroad, having noticed the anaesthesia produced by ether at "ether parties," four years prior to its use by any one else, first administered ether for a surgical operation, and having committed his fame and fortune to an assertion proved that one point, and through this wonderful discovery in relieving pain, the remarkable progress in modern surgery and obstretrics has been made possible. Showing the spirit of his benefactor to his race, Dr. Long frequently said: "To me, my profession is a ministry from God," and this expression is chiseled upon his tombstone which marks his last resting place in the cemetery at Athens.

In recent years, the names of Erlich, Cushing, Murphy, Crile and the Mayos have become quite familiar to the rank and file of the profession, and doubtless these and others will be handed down to posterity as having made definite contributions to medical and surgical science.

"In medicine the whole pageant," says Sir Berkeley Moynihan, "is as noble and splendid as in any of the sciences or arts, and it reveals the collective and continuous genius of a band of men inspired by the loftiest purpose, and lavish in labor and sacrifices for the welfare of mankind."

While we are their debtors and heirs, these are passed away—there will be no more eras of Feudalism, nor Renaissance, nor Reformation, nor Revolution—the era in which we live will be distinguished from those past and gone by in our industrial life.

While this is not an heroic age in the sense that it is summed up in the lives of one or two great characters—a Luther, a Shakespeare, a Washington, a Hippocrates, a Galen, or a Lord Lister, would be out of place in these days of ours—nevertheless it is not lacking in heroic element, and in every man who would take part in it is demanded the qualities of patience, judgment, action and sacrifice.

The last hundred years have seen an unprecedented change in the world of work. Industry has been transformed within the past century; great mills have taken the place of the spinning wheel and loom; far reaching and complex systems of railroads have superseded the plodding caravan; great cities stand where quiet villages once stood; and in this age of harnessed electricity, super-dreadnaughts, airships, and automobiles, we live more in our three score years and ten of busy life than did our forefathers in their centuries of living, for "we live in deeds, not years."

The contribution which we will make to the world as in all other times will be two-fold. The material contribution of our industrial era will be measured in terms of manufacture and invention, in world-wide systems of trade, in universal commerce, and in the elevation of labor to a place of respect among men.

In our profession, we have but to read current literature to realize what our material contribution will be. Wonderful progress has beeen made in preventive medicine and operative surgery and obstetrics. But in this era of anaesthesia, vaccines, and radium therapy, focal infection, vitamines, abdominal and orthopedic surgery, and the endocrines, there is vast danger that in the exaggeration of the material, our spiritual contribution may be lost from sight.

It is with the hope that in this strenuous and materialistic age, we as professional men may be persuaded to consider more carefully the spiritual side of our labor that I have had the temerity to invite your attention to the consideration of this topic today.

It is not my purpose to discuss nor invite a discussion concerning my religion, however, for like Sir Thomas Browne, a distinguished English physician, in his "Religio Medici," written in 1635, "there be several circumstances that might persuade the world I have none at all, as the general scandal of my Profession: 'Among three physicians, two atheists; the natural course of my studies, the seeming indifference of my behavior and discourse in the matter of Religion," etc,—yet like him I dare affirm that I entertain the "same belief our Saviour taught, the Apostles disseminated, the Fathers authorized, and the Martyrs confirmed."

The principals which I shall enumerate are axiomatic, but shall be in vain unless they furnish inspiration and serve to remind us, and possibly through us the medical men of America, with the dignity and sacredness of our chosen profession. Work is not an accident, but is essential, and is the most potent element in life. Noble character was never fostered by idleness, and work or failure to work brings inevitable consequences. While the citizens of Greece and Rome worked they were strong, but when they gave over their work to helots and slaves, they lost their power.

We who take part in this epoch of common work have before us perhaps the greatest opportunity and responsibility that were ever presented to one generation.

"Work," said Henry Drummond, "is an incarnation of the unseen. In this loom man's soul is made. There is a subtle machinery behind it all, working while he is working, making or unmaking the uneseen in him. Integrity, thoroughness, honesty accuracy, conscientiousness, faithfulness, patience—these unseen things which complete a soul are woven into it in work. Apart from work, these things are not"

Drudgery is the foundation of every worthy life, and the greater the life the deeper the foundation. He would be a poor builder who, looking upon the finished building, did not know that beneath the architecture and sculpture there was a rough but strong foundation.

Before the Madonna of Raphael we see only the result of years of toil, for the leaves of the master's sketch-book tell the story of hidden labor, the hundreds of heads and hands that the artist drew before he put his brush to canvas.

We stand in the operating room and behold the finished surgeon as his hands and fingers move with consummate ease, and the operation is completed as if by magic, and we are persuaded that "Genius is the ability to do with ease, what others cannot do at all." But we are looking at the superstructure of the master's art, and have forgotten the unseen foundations.

Preparation is the key which unlocks opportunity's gate, and just as the apprentice can never become a master by watching the master's work, so every ambitious physician, if he would excel, must spend months and years of preparation in arduous toil. Many a life of promise has failed of fulfillment and remained shallow and weak because it began to bear fruit too soon.

> "The heights by great men reached and kept,
> Were not attained by sudden flight;
> But they, while their companions slept,
> Were toling upward in the night."

The true physician will not only spend much time in preparation for his life's work, but will do thoroughly and accurately whatsoever his hands find to do. We should not be satisfied when we have done only the best we could, we should be satisfied only when we have done the best possible.

In the practice of our art we should be honest and conscientious. I have no right to advise an operation for my patient until I have made a careful examination and a sincere provisional diagnosis. When I can honestly ad vise: "If this patient was my wife, my mother or my child, I would wish this thing done,"—then and only then am I rendering to this one who has placed himself in my care, honest and faithful service.

We should with patience and thorougnness be faithful in the smallest details. The story is told of Michael Angelo that a visitor, returning after a lapse of some time to the shop where the sculptor was at work upon a statue, expressed surprise at the slow progress of the work, and asked the artist what he had been doing in the meantime. "I have removed a shade of thickness from the lip," said the workman; "I have brought out this vein and softened that line a little." "But those are mere trifles," said the visitor. "Yes," answered the sculptor, "but trifles make perfection, and perfection is no trifle."

The time spent after our graduation in the hospital as internes, in the graduate school of medicine, and as assistants to established physicians was not wasted, but in proportion as these opportunities were improved, a substantial foundation was laid, and our ultimate success or failure was determined.

When honored, by being invited to be your guest on this occasion, I though first that I would choose a scientific surgical topic in the study of which I have been especially interested. I would like to have discussed "The Dominating Influcnee of Acidosis in Surgery," for my experience in some 1500 operative patients which had been thoroughly alkalinized by the judicious use of soda and dextrose, as compared with a series of patients without preparation, has convinced me that the operator who fails to properly prepare his patient for operation, it matters not how insignificant the operation, if a general anaesthetic is to be employed, is not a surgeon and is criminally negligent.

In a large series of hysterectomies performed for various pathological conditions, and observing these patients at intervals over a period of years, I have concluded deliberately that if a hysterectomy is indicated at all, then the complete, and not a partial, removal of the uterus should be done—so a discussion of: "Complete versus Sub-Total Hysterectomy" was considered.

Since the profession has seemingly gone insane in the rapid development of the study of the ductless glands, and many enthusiastic endocrinologists are predicting that the gynecologist will quite soon be no more—a discussion of: "Operative Gynecology and the Endocrines," would have been to me interesting, for while I believe that to supply deficient internal secretions is of inestimable value, I am equally confident that these will not cure many gynecological conditions which are readily and only amenable to surgery.

There are other problems of special interest to the obstretrician and abdominal surgeon which suggested themselves to my mind as appropriate for our consideration today—but feeling that these topics would probably interest only a particular section of your Association, and observing and feeling the need of more serious thought as to our profession, I have sought to bring to your attention this topic, which to me is of supreme interest and I trust will prove of value to us all.

The true measure of a man's success is not measured in terms of the dollars which he may accumulate, nor by the reputation and influence which he achieves—but by what he does, the spirit in which he does it, and its usefulness to his fellow men.

Frescoed upon the walls of the Library of Congress at the National Capitol in blazing letters of gold is this expression, "As one lamp lights another nor grows less dim, so nobleness enkindleth nobleness," and somewhere else I have seen this: "To thine own self be true, and it must follow as the day the night, thou cans't not then be false to any man." So finally, whatever contribution we may make to the world in this new era of ordinary work, will not be measured in visible terms of discovery and accomplishment, but in invisible terms of character.

Shall not the medical men of today consider more seriously their obligation and realize within themselves their divinity, for as said Governor Taylor of your own state on one occasion in an address: "What intelligence, less than God, could fashion the human body? What motive power is it if not God that drives this throbbing engine we call the heart, with ceaseless, tireless stroke, sending the crimson stream of life circling and rebounding through every vein and artery? What is this mystery we call the mind? What is this mystery we call the soul? Oh, who can comprehend, who can deny the Divinity that stirs within us? God is everywhere and in every thing, His mystery is in every bud and blossom, in every leaf and tree, in every rock and hill, and vale and mountain, in every spring and rivulet and river. The rustle of his wing is in every zephyr, its might is in every tempest. He rides on the dark pavilion of every storm cloud, the lightning is His messenger, and the thunder is His voice. His awful tread is in every earthquake and on every ocean; His heavens above us teem with His myriad of shining witnesses, the Universe of Solar Systems, whose wheeling orbs course the crystal paths of space, and proclaim through the dread halls of eternity the wisdom, power and dominion of the all-wise, omnipotent and eternal God."

As we as medical men today appropriate Him and His Son, the great physician, just in that proportion are we realizing in our lives that which is highest and best.

As we contemplate Him, and are inspired by the sacrificial lives of those who have entered into the joys of their labor:

"Let us live for those that love us,
For those who know us true,
For the heaven that smiles above us,
And waits our spirits too;
For the cause that lacks assistance,
For the wrong that needs resistance,
For the future in the distance,
And the good that we can do."

Let us remember as suggested in the words of Henry Van Dyke: Four things the true physician must learn to do, if he would make his record true—

Think, without confusion, clearly—.
Love, his patient ill, sincerely—
Act, with honest motive, purely—
Trust, in God and Heaven securely.

And in thus doing in the practice of our art—when we are troubled, we shall not be distressed; when we are perplexed, we shall not be in despair; if we are persecuted, we shall not be forsaken; if cast down, not destroyed; for we shall realize perfectly that the things which are seen are temporal, but the things which are not seen are eternal.

# CONSERVATION OF THE MENSTRUAL FUNCTION.*

By John B. Haskins, M. D., Chattanooga.

Since every ductless gland is influenced by hyperactivity or hypoactivity, it can be readily seen why we have instability of gland function so particularly marked in the female.

Quoting Bandler, "If we as gynecologosits lay great stress on the importance of ovarian function, it is because the function of the ovary, as manifested by menstruation and pre-menstrual symptoms particularly, is an index to its relation to other glands and to the element of acquired or inherited instability.

"In some instances of ovarian instability, hyperfunction or hypofunction may be primary, but in very many instances its relation to the thymus, thyroid and the hypophisis is so close that the result is secondary. From whichever point we approach this question, it may be stated that altered ovarian function as evidenced by menstruation is an index and an evidence that there is an upset somewhere in the endocrine chain."

Physical cure is often purchased at the price of nervous instability; when such is the case, we speak wisely of neurasthenia, psychosis, neurosis and hysteria, while the same physical cure might have been obtained without creating the disturbances so troublesome to the patient, the family and friends.

Physiologists tell us that the central nervous system has a short heridity; its characteristics are not fixed, but unstable, especially in some families. The nervous system in man weighs as much as the liver, and has as many or even more possibilities of functional disturbances, because it is less stable in its functions. The only difference is that the bile function can be seen, and disturbed thoughts canot be seen—only their results. Many doctors have sought physical conditions for these manifestations, and often very improperly attempt to place the blame for them on some real or fancied physical defect with which there is little or no connection. The uterus, the ovaries and the tubes have chiefly suffered from these misguided efforts at relief, apparently based on the conception that woman's psychic disturbances are generated in her reproductive organs. After all, it is the mental and not the physical which controls our estimate of man.

To those who have had occasion to observe the results of surgical operations on the reproductive organs of women, the truth of these remarks is self-evident. With the exception of malignant disease we should consider every surgical disease of the generative organs with their future nervous condition in mind, as well as the physical state which is desired. Happiness is a state of mind, and a state of mind is not necessarily a state of body. This belief is borne to the consulting surgeon by the large number of women he observes, who have been operated on once, twice or many times. Their relations in life are changed, they are put out of touch with their social conditions, and they attempt, again and again to gain relief from mental and nervous suffering by further resort to treatment of the physical.

**Importance of the Ovary.**—The ovary is an organ of internal secretion independent of the production of ova. The gonadial secretion of the interstitial cells of the ovary controls the development of the female characteristics. It influences the closure of the epiphyses of the long bones, and is related to the endocrine disturbances to which are due the tall, spindling types of giantism. The effect of the ovary on the individual, including menstruation, is independent of direct nervous connection.

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*Read at Annual Meeting of the Tennessee State Medical Asociation at Nashville, April, 1921.

Tuffier, in radical operations for pus tubes, removed both ovaries and tubes, sterilized the ovary for surface infection in an alcohol flame or by dipping in tincture of iodine, and planted it between the peritoneum and the abdominal fascia. The menstruation ceased for four or five months and the symptoms of the menopause developed; then menstruation started and continued normally.

I have a few times transplanted small portions of what seemed to be normal ovarian tissue, but placed it above the fascia, fearing that it might give trouble. In every case we obtained primary healing, and one, that I have been able to see from time to time, is in perfect health and menstruates regularly.

The internal secretion of the ovary is one of the strongest links in the endocrine chain and widespread effects are manifested on the cessation of the ovarian function.

The transplantation of ovaries from one woman to another, so far as I know, has not been followed by return of menstruation or impregnation. A few suggestive instances have been reported, however, by Franklin Martin and by Robert Morris. Morris suggests that ovarian tissues may have been left in the ovarian ligament at the time the ovaries were removed, and this non-functioning ovarian tissue may have been stimulated to action by the introduction of ovaries from another woman. He relates some experience to confirm this opinion.

Complete removal of the ovaries in inflammatory disease is rarely necessary, and, if possible, a sufficient amount of ovarian tissue should be saved to continue the menstrual function.

In tubal pregnancy it is seldom necessary to remove the ovary.

Dr. W. J. Mayo says: "The nervous and psychic changes of the normal menopause are aggravated in young women by operations that check the menstrual flow. It is probable that menstruation itself has some important endocrine function. The effect on the patient is essentially the same, whether menstruation is stopped by removing the ovaries and leaving the uterus, or removing the uterus and leaving the ovaries. Conservation of the reproductive function is of first importance, but conservation of the ovary for the continuance of its internal secretion and its effect on the production of menstruation is second only to to reproductive function; and even if reproduction is impossible, conservation of the ovary or some portion of it for the sole purpose of continuing menstruation is of greatest importance.

"Sacrifice of the reproductive and menstrual function, however, is not confirmed to removal of the ovaries, but is concerned in operations on the tubes and uterus, and in the latter especially for myoma.

"Hysterectomy is seldom necessary for benign myoma in a woman under 35, and demands an excellent reason in a woman under 30. At 45, hysterectomy is probably the best procedure. Sutton has shown that ten per cent of women who require hysterectomy for fibroids after 50 have coincident malignant disease.

"Myomectomy should be done when possible in a woman under 35 and only 19 out of a series of 741 at Mayo Clinic required secondary operations."

**Hysterectomy for Uterine Myoma.**—I believe that total hysterectomy is a wise procedure if it can be performed safely, and usually it can. Leaving the cervix leaves an average cancer liability. I have seen two cases of cancer occur in the left-over cervix after supra-vaginal hysterectomy. Removing a cone of mucous membrane of the cervical canal from above, or plunging the cautery through the cervical canal to destroy it is not sufficient. Peterson has shown that only one third of the cancers of the cervix begin in the cervical canal (adenocarcinoma). Two thirds of the cervical cancers are epitheliomas originating in the vaginal parts of the cervix. After total hysterectomy, the patient seldom complains of local trouble. If the cervix is left, often a foul, irritating leukorrhea results from degenerative changes in the mucous glands of the cervix. Shrinkage of the vagina appears to be greater after subtotal than after total hysterectomy. It seems as if nature, in the effort to shrink the cervix following supravaginal hysterectomy, is stimulated so greatly as to increase the shrinkage of the vagina as well.

Many surgeons, including our President, Dr. Sheddan, have called our attention to the advisability of opening the abdomen, drawing up the uterus, and opening the anterior wall to expose the endometrium for examination in certain cases of prolonged uterine hemorrhage without apparent good cause. Following the advice of these men, I have done this operation twice and have thus been able to save the uterus. In one case a polyp was found in the left cornu that a curet did not touch, and the other a small submucous fibroid.

In conclusion, let me again call your attention to the importance of the menstrual function, even if pregnancy is not possible; and the surgeon who faces the necessity of removing the uterus or the ovaries should not be unmindful of bringing about those endocrine changes attending the procedure.

## DISCUSSION.

Dr. J. A. Crisler, Memphis:

I merely wish to compliment Dr. Haskins who has covered the ground completely. I do not think we can offer any adverse argument regarding the points he has brought out in his paper. A study of the endocrine glands has become one of the biggest problems that is now before the medical profession of the world. The establishment of the societies for the endocrinological study was a great step in the right direction. As the essayist pointed out, the removal of an ovary or both ovaries particularly disturbs the cycle of endocrine function, the control of which is never in the doctor's hands. One should be particularly careful in dealing with the ovaries from a surgical standpoint. The pendulum in regard to the removal of ovaries has swung entirely back to where it belongs. But we are coming more and more to understand what the endocrine secretions mean, and the nearer we approach to that, the nearer we will come to perfection from a surgical standpoint, for without this knowledge, and without a profound respect for all endocrine organs, we can never reach that high pinnacle of righteousness that our efforts in other directions would demand for us.

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Dr. Eugene J. Johnson, Memphis.—I was especially interested in Dr. Haskin's paper, particularly along the line of transplantation of the ovary, where the pathological condition justifies the removal of the uterus. We have been taught the technic of soaking that portion of the ovary in iodin, especially in dealing with cases of pus tubes and with fibroid conditions of the fundus. After operating many times and leaving an ovary in what appeared to be in its normal position, After having been infected by the gonococcuc of Neisser, and having to go back into the abdomen again, the thought has suggested itself to me of leaving this ovary in position, crippled as it is, without the uterus where cystic degeneration has taken place. Why take the chances of having this patient go through this active and stormy menopause? Why not transplant the ovary between the peritoneum and muscle for the purpose of maintaining, if nothing more, physiological balance?

I have done several of these transplantations in the last eighteen months and have been watching them carefully, and every one of them I have been able to hear from is going along nicely and is having no trouble. None of the usual stormy manifestations have occurred, which they usually have, and I maintain that you can keep up the physiological balance of the patient by conservative measures in transplanting ovaries.

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# EDITORIALS

## THE MEDICAL SOCIETY.

The Tennessee State Medical Association is a live, active body, composed in the main, of some of the very best men our profession affords; its annual meetings and deliberations rank high among the scientific bodies of the world. It is no waste of time and money to attend these meetings. It is a kind of give-and-take experience with the active, most up-to-date medical men. Sometimes the acquiring of one practical idea, either in the open meeting or in private conversation in the hotel lobby, is worth the time and money lost in attending that meeting.

Now, it should be remembered that the county society is the unit in this great collaboration of practical thought. Many of the counties in the state have good live working societies whose output is to the advantage of all. I like to go to my county society regularly and hear the boys tell of their glorious achievements, and their inglorious failures; also their troubles along medico-legal lines. Failures should be reported as well as successes, for they really teach more. It is nice and wholesome to know what to do; equally so to know what not to do. You get both in the well-working up-to-date society. You learn what the boys are doing, and get acquainted with their dispositions and abilities.

Too many go to society with selfish motives, to get all they can get from the others, and give nothing in return. This is not fair; it is not right. If all go to receive and none to give, then none will receive. Reverse the proposition: let each and every one go determined to give, to contribute something to the good of the society, then all will receive and when next meeting time rolls around, they will naturally go back to the "lick-log" (the mountain people know what a lick-log is) to get some more therapeutic vitamines. Verily it is more blessed to give than to receive. Many a speech of mine has failed utterly to benefit the other fellow, but helped me wonderfully by quieting my desires. Try it and see how it works.

Now and then we find a bloated case of egotism, one who thinks he has a little better stock of ideas than the common herd and will not "put out." Beware! Some one away up the head of the "crick" may have a practical idea that would be worth much to you. I think every doctor who has been practicing very many years carries at least a few good, practical ideas by which he gets on. Better get them in circulation if you can.

Some do not go because they are so far behind the times. Well, that is the way to catch up. They are like the fellow who went into the water to swim and came very near drowning. When he got out he said he would never go in again until he learned how to swim!

Others remain away because they do not like some one else in the society, or because certain ones are not ethical. I find in society is the best place on earth to teach and inculcate principles of ethics. It is often talked there and threshed to a frazzle. Better leave out personal matters and talk about science and the good of the profession. Enmity in the profession might array some one against you when it would be to your interest to have him on your side, especially if the agitation is before a Circuit Judge.

Let us rise above petty things and come out to the societies and exchange ideas and experiences. I need you, and you might be able to get a point from my diary worth while. Be a great united body of high-minded big-hearted medical men, marching in solid phalanx for the good of humanity and of each other, glorifying God in our work. No one knows it all. I am persuaded that Josh Billings was right when he said that it was 'not ignorance that was hurting the people, but knowing so many things that are not so.' If you desire more milk and that the cow do her utmost, strip her to the last drop.

J. J W.

## PASSING STRANGE.

It would seem that if the efficacy of any agent used in the treatment of disease has been clearly and positively demonstrated that the value of diphtheria antitoxin has been unmistakably proven. Yet the fact remains that little reduction has been effected in the diphtheria death rate within a relatively long term of years. It is strange indeed that a disease for which an almost unfailing specific is everywhere available should continue to roll up a deplorably large list of deaths, year after year.

We have heard it said in years past that the cost of antitoxin was an important factor in the maintenance of a high diphtheria death rate, and we are convinced that this was true, in Tennessee at least, until the State Board of Health made it possible for antitoxin to be had at very reasonable cost. For about five years now, 5,000 units of antitoxin has been obtainable for $1.88, and 10,000 units for $3.60. In all of the largest cities and many of the counties of the state, antitoxin can be had without cost for the treatment of diphtheria in indigent persons. So high costs can no longer be said to play a part in the continuance of an unnecessarily high death rate from diphtheria.

There is a disposition upon the part of a considerable number of parents to combat a diagnosis of diphtheria in their children, and to refuse their permission for the timely administration of antitoxin. This condition of affairs is widespread enough, in our opinion, to have a rather deeded influence in keeping up the death rate. The doctor cannot compel such parents to accept what he knows to be the indicated and necessary treatment for their children in such instances, but he can refuse to assume any responsibility, and can withdraw from any case in which he is not allowed to do what he knows is the right thing.

Slowness in arriving at a diagnosis and delay in using antitoxin are two very important factors contributing to the high diphtheria death rate. The child should be given the benefit of the doubt always, in our humble opinion, and in all cases in which there is good ground for reasonable suspicion of diphtheria when the disease is prevalent, antitoxin in sufficient amount should be used.

The use of insufficient quantities of antitoxin at the first administration is a practice that is all too often indulged in. In our humble opion again, there is no reason for the 3,000 units package of antitoxin. We believe that the manufacturers should stop sending out this dose. We are almost ready to believe that the minimum package of antitoxin should be that one containing 10,000 units. The doctor who gives 10,000 units as soon as he makes his diagnosis will get far better results than that one who uses 5,000 units as the initial dose of antitoxin.

The careless handling of antitoxin by some druggists, and by some doctors, too, causes a deterioration of the antitoxin which makes it worthless. Antitoxin cannot be cooked and frozen, or frozen and then cooked, and still retain its potency. It cannot be kept in just any old place around the drugstore, and it cannot be packed around in the doctor's bag on the floor of his Ford for days or weeks and still retain its curative value. Antitoxin should be be kept at a constant low temperature until it is to be used. The druggist who will not equip his store with the necessary facilities for properly handling antitoxins and vaccines should not be patronized by the doctor who wants to get results. And the doctor who hauls antitoxins and vaccines around in his car or in his own pockets for days or weeks need not expect results from their use. Exposure to undue heat or repeated changes of temperature will "kill" antitoxins and vaccines.

There is nothing whatever in what has been written here that is new to the doctors who may read it, with the possible exception of the suggestion relative to the minimum package of antitoxin. They have all said the same things to each other many times. But the fact remains that diphetheria keeps on killing at the same rate and for the same reasons. The rate is too high, and the reasons for its continuance should not be allowed to operate longer.

The last factor which we would call attention to as operating to keep up the death rate from diphtheria is the licensed doctor in Tennessee who refuses to use antitoxin. We have him among us. Passing strange!

## SEMI-ANNUAL MEETING OF STATE BOARD OF HEALTH.

The regular semi-annual meeting of the Tennessee State Board of Health was held at Nashville on October 25. Reports of the various divisions, made to the Board at this meeting showed that the work of the department is constantly increasing, and that the beneficial results coming from this work are growing larger year by year.

The Division of Vital Statistics made a final report on the births and deaths recorded for 1920, these compilations not having been complete at the April meeting of the Board. There were registered in 1920 a total of 50,904 births, exclusive of 2,996 births recorded as still-births. The total number of deaths recorded was 28,392, exclusive of 2,439 still-births recorded as deaths. The reductions in deaths recorded in Tennessee in both 1919 and 1920 are in keeping with like reductions noted in other states in the Registration Area. For the first six months of 1921, there were recorded 13,436 deaths and 27,291 births. The number of deaths from tuberculosis in 1920 was the lowest ever recorded in Tennessee—3,717. For the first six months in 1921 only 1,572 deaths were recorded as having been due to tuberculosis. The deaths from typhoid fever in 1920 were 434 in number, also a new low record for Tennessee, while for the first six months in 1921, only 112 deaths were registered from typhoid. Cancer was assigned as the cause of death in 1,080 deaths in 1920, while for the first six months of 1921, 542 deaths were attributed to cancer. In 1920, there were 318 deaths recorded as due to pellagra, the lowest number from this cause ever registered, while for the first half of 1921 only 128 deaths were attributed to pellagra.

The report on the incidence of communicable diseases showed an unusual prevalence of typhoid fever for the six months from April to October 1921, especially during the early months of this period. Smallpox and measles also showed an unusual incidence for the six months covered by the report. An epidemic outbreak of streptococcic sore throat, due to milk infection from a streptococcic lesion on the hand of a dairyman, was reported on, this outbreak having occurred in a Middle Tennessee town, and having been splendidly handled by the local health officer. Diphtheria was reported as very prevalent throughout the state from July to the time of the meeting of the Board of Health. These were the outstanding features of the report on communicable disease incidence. Unfortunately, these diseases are not reported to local and county health officers as they should be.

The Division of Rural Sanitation report showed four field units at work in the state, each unit in charge of a medical man as Director, and with public health nurses and sanitary inspectors attached. The work of this division of the State Board of Health is constantly growing. One of the most encouraging features of the report was that setting out the close and cordial spirit of cooperation existing between these field units and the physicians of the counties in which they are engaged. Williamson county is the first county in Tennessee to "try out" the plan of having a county department of health, the personnel of the unit of the State Board of Health now in that county constituting the personnel of the Williamson county health department. During the summer months the International Health Board working with this Division of the State Board of Health undertook a re-survey of four counties in the state, to determine whether or not there had been any reduction in the incidence of hookworm disease since the work done by the Rockefeller Sanitary Commission several years ago. There appears to have been a very material reduction in three counties surveyed, while the fourth county shows a very slight reduction.

The Division of Rural Sanitation has begun a tuberculosis survey in one county. The plan in operation is somewhat unique, and it is hoped that this survey will have important and far-reaching results. A list has been made of the deaths which have occurred in this particular county from tuberculosis within the last five years. It is proposed to find and have examined all of the "contacts" with those having died from tuberculosis. Of the first 178 examined, 28 have been found to have tuberculosis, with positive microscopic findings in the sputa.

Public health talks to the number of 619 were delivered by field workers to schools and other audiences; about 19,000 pamphlets and leaflets were distributed; 74 newspaper articles published; and 925 home visits were made by the nurses attached to the field units during the six months covered by the report to the Board.

Of 3,060 specimens examined for the diagnosis of uncinariasis, 26 per cent were found positive. Of 4,554 examinations for intestinal parasites of all kinds, 48 per cent were positive for some parasite.

A total of 1,194 sanitary closets was reported as having been constructed in four counties. Typhoid immunizations to the number of 9,163 had been begun, 6,800 of which were complete at the time of the report. Investigationss of 104 cases of typhoid fewer were made. ''Infant hygiene'' visits were made by the nurses to the number of 459, and 555 children under five years of age were examined. Forty-eight visits were made to expectant mothers. All of this work is done with the close cooperation of local physicians.

In the work of medical inspection of school children, 5,484 children were examined. All parents of children examined are given a report of the findings and are asked to consult their own physicians for medical attention where needed. As a result of 474 follow-up visits to the homes of children found to need medical attention, 176 were found who had received such attention from their own physicians. Many more are known to have received needed treatment, but the necessary visits to make the records official could not be made.

Adults to the number of 444 were examined, 177 of whom were referred to their own physicians without a diagnosis.

Of 96 persons examined in routine tuberculosis work, 35 were found positive. Visits to the number of 149 were made to individual cases of tuberculosis.

The Division of Sanitary Engineering reported investigations of 78 public water supplies, with 177 laboratory examinations, and investigations of a number of semi-public supplies, with 77 laboratory examinations. Investigations of 16 separate sewerage problems were made during the six months. Twenty-two towns in the state have made improvements in their water supplies as a result of recommendations of the Sanitary Engineer of the State Board of Health. Plans for new water plants for four towns were passed on and for sewerage projects in four places in the state. Plans were prepared for a sewerage disposal plant for one public building, and for school closets and homes in various places throughout the state.

The report for the State Board of Health Laboratory for the five months from April to September inclusive, showed 3,672 examinations for diphtheria; 45 for streptococci (epidemic) sore throat; 56 for cerebrospinal meningitis; 121 for malaria; 10 for anthrax; 829 for intestinal parasites; 1,665 for tuberculosis; 1,298 for typhoid fever; 276 for rabies; 1,348 for syphilis (including specimens from state institutions); 292 for gonorrhea; 345 examinations of water; 65,560 doses of typhoid vaccine made and distributed; 18 Pasteur treatments given. The work of the Laboratory for October is not included in this report.

Malaria control demonstrations were conducted in two towns in the state this year. There appears to have been a reduction of 89 per cent effected in one of these towns and a reduction of 79 per cent in the other as compared with last year. The cost of this work was 71 cents per capita in one town, and 31 cents per capita in the other. Of the 71 cents per capita cost in the first town, 40 cents per capita was for the drainage of a large swamp on the edge of the town. This work, together with that done in 1920, has shown that malaria can be controlled in restricted areas in Tennessee at a very reasonable cost.

The Division of Venereal Disease Control reported 1,606 cases of syphilis; 1,532 cases of gonorrhea, and 138 cases of chancroid reported by physicians in the six months. In the 7 clinics being operated in the larger cities, 7,235 doses of arsphenamine (or similar agent) were given. Upon requests made to the Division, 7,052 pamphlets treating of the nature and prevention of venereal diseases were distributed, and 6,556 such pamphlets were sent out by mailing lists. Three thousand copies of the "Monthly Abstracts" of the Division were sent to physicians in the state.

The above are some of the features of the report made to the State Board of Health at its last semi-annual meeting. Many of the routine activities of the department covered in the report are not referred to for lack of time and the lack of room to set them out here. It is the wish of the State Board of Health and all of its officers that the medical profession of the state should know just what it is doing and how it is doing it. And it is especially the desire of the department that its work shall merit and shall have the interest and the active help of the physicians of Tennessee.

## IN MEMORIAM.

Dr.. T. J. Potter was born in Warren County, Tennessee, July 22, 1861. He obtained his literary education in his native county, and in 1886 was married to Miss Helen Moore.

His M. D. degree was from the University of Nashville, in 1900, he having held front rank in his classes and graduated with distinction.

Responding to the urge of circumstances, he, at an early age, undertook to care for himself. His struggle for place and competency was but a repitition of that struggle which every young man must make who faces the problems of life unaided by family fortune.

When Dr. Potter determined to take up the study study of medicine, he put into it in full measure all of the zeal and enthusiasm with which he was so richly endowed. Gifted with a high order of mind, and a fine and pleasing personality, he was early recognized by his fellows as a man of surperior attainments, and great promise. All the years of his professional life were spent at Smithville, Tennessee, where he was loved and trusted by a large clientele.

When our nation entered the great war, Dr. Potter was among the first to offer his services to his country. Being too old to secure service in the army, he was made a member of the draft board of DeKalb County, in which capacity he served throughout the war. Since the war, he has continued to serve as Government Examiner for Ex-service Men, along with his regular practice.

Dr. Potter was a devout member of the Christian church, a Mason and a Knight of Pythias. He was one of God Almighty's noblemen. Gentle, considerate, able, zealous, and clean in his professional relations, he endeared himself to his professional brethren, and to his patrons, so that his untimely taking-we shall be long in forgetting. As a perpetual memorial of Dr. Potter's life and work among us, and as an evidence of our profound grief at his untimely death, we order these expressions to be made a part of the records of the DeKalb County Medical Society, and that a copy be given to his family, and another copy be given to his family, and another copy be sent to the Journal of the Tennessee State Medical Association.

G. M. ALLISON, President.
L. D. ALLEN, Secretary.
DeKalb County Medical Society.

## IN MEMORIAM.

### Dr. John F. Graves, Juno, Tenn.

Whereas, on October 7, 1921, death removed from the roll of the Henderson County Medical Society one of its honored members, Dr. John F. Graves, 43, who was a good, faithful physician, genteel toward all mankind, especially kind to those to whom he was called to administer as physician, patent with the sick, always ready to help them unto the extent of his ability, day or night.

And whereas, we believe the immediate family and community in which Dr. Graves labored have sustained a great loss; therefore, be it resolved, that the Henderson County Medical Society extend sympathy to the bereaved family and friends of deceased.

Resolved further, That a copy of this resolution be mailed to the family of deceased, and a copy placed with each of the Henderson County papers for publication, also with the Journal of the Tennessee State Medical Association.

W. F. HUNTSMAN.
J. M. ARNOLD.
Committee.

## OBION COUNTY MEDICAL SOCIETY.

The Obion County Medical Society held its regular annual Reelfoot Lake meeting at Samburg Tuesday.

After eating one of Mrs. Nation's famous fish dinners, the program was opened by the president, Dr. W. F. Roberts. The first paper on the program was a very interesting and practical one, read by Dr. W. H. Witt, Professor of Medicine, Vanderbilt University, Nashville, Tenn. Dr. Witt's paper was received with close attention.

The society was also fortunate in having Dr. E. J. Johnson, of Memphis, Tenn., one of the South's prominent surgeons, as a guest. He read a very important paper on "Goitre," telling of the wonderful work that surgery is able to do for apparently hopeless cases.

The society adjourned early, and a number of the visiting physicians enjoyed a ride up the lake.

One of the largest crowds ever present heard the good program. The following members were present: Dr. and Mrs. W F. Roberts, Dr. and Mrs. D. C. Maddox, Dr. and Mrs. C. Marshall, Dr. and Mrs. H. W. Qualls, Dr. and Mrs. Darnall, Drs. Glover, Watson, Prather, Smith, Glennan, Mulherran, Blanton, Hibbitts, Burrus, Park. The following visitors were present, Drs. Prather and Morrison, Hickman, Ky.; Drs. Alexander, Majors, Luten, Fulton, Ky.; Drs. Bond and Wingo, Martin; Dr. Edmundson, Mrs. J. P. Baird and wife and Mrs. J. P. Baird, Dyersburg, Tenn.; Mrs. W. T. Sanders, Mrs. C. J. Chambers, Murphysboro, Ill.; Miss Cecil Olive, Mr. M. F. Garrigan, Mr. Chas. Miles, Mr. H. Garrigan.

## FOR SALE.

Practice in West Tennessee, $3,500.00 annually. In splendid community, with good schools and churches. Farm of 80 acres, suitable for general crops or for truck. Improvements consist of 9-room dwelling only four years old, with water, hot and cold, in house; tenant house; two barns; deep well; good fences. Running water on farm. Nearest doctor four miles; others six miles or more distant. Collections, 95 per cent in normal years. Write this Journal for further information.

## COUNCIL REMEDIES.

One of the most important developments in the medical history of the past five years has been the work of the Council on Pharmacy and Chemistry, of the Amedican Medical Association. Their examination and analysis of newer remedies has done much to advance the standard ofmanufacturing pharmacy; it is safeguarding the doctor against inferior products, and indicating those for which misleading claims are made.

The co-operation of the doctor in using and prescribing Council-Passed products is making this work more effective each year. The co-operation of the manufacturers is, also an encouraging recognition of the value of this service. A partial list of the Council-Passed remedies, manufactured by The Abbott Laboratories, Chicago, appears in this issue. These are obtainable on prescription at the leading pharmacists, or may be obtained direct, as desired.

### BOOK REVIEW.

**Diseases of the Skin.—By Richard Sutton, M. D., Professor of Diseases of the Skin., University of Kansas School of Medicine.** Profusely illustrated. Fourth edition, revised and enlarged. C. V. Mosby Company, St. Louis. $9.50.

Dr. Sutton's book on the skin is generally regarded as one of the standard works of its kind, in the United States. The first edition was issued only five or six years ago, and we now have the fourth edition, showing that the work is very highly regarded by the medical profession and also that the author is desirous of making his book as serviceable as may be done by keeping it fully up with the great progress that has been made in dermatology. To this end the revision has been very thorough, and additions have been numerous and complete.

**Practical Medical Series.—Volume II, 1921.—General Surgery**

Volume III. Eye, Ear, Nose and Throat.

The above are the latest volumes of the well known year book series. Both are fully up to the standard long established and maintained by this splendid series of scientific reviews.

## MEMBERS OF THE TENNESSEE STATE MEDICAL ASSOCIATION

### For 1921.

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### Anderson County.

Drs.

| | |
|---|---|
| J. M. Cox | Coal Creek |
| J. H. Gammon | Coal Creek |
| E. E. Pollard | Coal Creek |
| Edward Dickson | Coal Creek |
| H. D. Hicks | Clinton |
| S. B. Hall | Clinton |
| W. B. Campbell | Maryville |
| R. L. Carter | Edgmore |
| Charles L. Johnston | Wind Rock |
| C. H. Kyker | Briceville |
| J. T. Hayes | Oliver Springs |
| W. H. Eblen | Petros |
| J. Sam Taylor | Leinart |
| E. M. Beasley | Coal Creek |

### Bedford County.

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|---|---|
| T. R. Ray | Shelbyville |
| J. L. Morton | Shelbyville |
| G. W. Moody | Shelbyville |
| W. H. Avery | Shelbyville |
| S. S. Moody | Shelbyville |
| W. T. Robinson | Shelbyville |
| G. E. Horton (deceased) | Shelbyville |
| J. H. Dyer | Wartrace |
| R. E. Shelton | Lynchburg |
| G. L. Landis | Unioville |
| J. T. Conditt | Flat Creek |
| T. J. Coble | Shelbyville |
| J. P. Taylor | Wartrace |
| J. W. Sutton | Petersburg |
| W. C. Kirkland | Shelbyville |

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| A. M. Gamble | Maryville |
| J. A. McCullough | Maryville |
| J. E. Carson | Maryville |
| E. L. Ellis | Maryville |
| R. L. Hyder | Maryville |
| C. C. Vinsant | Maryville |
| W. B. Lovingood | Maryville |
| F. A. Zoller | Maryville |
| B. E. Delozier | Maryville |
| J. D. Singleton | Maryville |
| G. D. Lequire | Maryville |
| J. W. McMahon | Alcoa |
| Geo. W. Burchfield | Alcoa |
| N. C. Ellis | Friendville |
| S. S. Kittrell | Louisville |
| Chas. Lane | Grenback |
| S. L. Susong | Walland |
| J. M. Waters | Walland |
| A. J. Isham | Townsend |
| K. A. Bryant | Maryville |
| A. B. McTeer | Rockford |

### Bradley County.

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|---|---|
| L. D. Owen | Cleveland |
| W. H. Schultz | Cleveland |
| J. L. McKenzie | Cleveland |
| S. B. North, Rt. 1 | Cleveland |
| T. H. Davis | Cleveland |
| J. M. McIntosh, Rt. 4 | Cleveland |
| T. J. McKamy | Cleveland |
| T. E. P. Chambers | Cleveland |
| R. O. Kibler | Cleveland |
| E. A. Quinn | Cleveland |
| C. T. Speck | Cleveland |
| R. P. Sullivan | Cleveland |
| W. H. Sullivan | Cleveland |

### Campbell County.

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|---|---|
| W. B. Rose | LaFollette |
| W. H. Longmire | LaFollette |
| W. L. Coper | LaFollette |
| G. M. Rodgers | LaFollette |
| S. D. Queener | Jacksboro |
| L. M. Scott | Jellico |
| F. A. McClintock | Newcomb |
| G. B. Brown | Elk Valley |
| James M. Ausmus | Pruden |
| P. T. Howard, Ft. Sanders Hosp. | Knoxville |
| G. M. Richmond | Jellico |

### Carroll County.

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|---|---|
| A. I. Dennison | McKenzie |
| J. H. Williams | McKenzie |
| H. T. Collier | McKenzie |
| R. A. Douglas | Huntingdon |
| V. E. Massey | Huntingdon |
| G. C. Bryant | Milan |
| O. W. Fesmire | Atwood |
| J. B. Cox | Huntingdon |
| Tyler Cox | West Port |
| E. W. Hillsman | Trezevxant |
| H. D. McGill | Yuma |

### Chester County.

| | |
|---|---|
| W. M. Wilson | Henderson |
| J. L. White | Henderson |
| H. T. Pitts | Henderson |
| J. D. Anderson | Henderson |
| W. C. Brown | Henderson |
| J. L. Smith | Jacks Creek |

### Cumberland County.

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|---|---|
| W. A. Reed | Crossville |
| V. L. Lewis | Crossville |
| E. M. Mitchell | Davidson |

### Crockett County.

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|---|---|
| J. H. Jones | Alamo |
| S. E. MacDonald | Bells |
| E. Farrar | Bells |
| M. E. O'Neal | Maury City |
| E. S. Hopper | Alamo |

### Cocke County.

| | |
|---|---|
| E. E. Northcutt | Newport |
| H. M. Purcell, 1402 Chamberlain Ave. | Chatt'ga |

### Coffee County.

| | |
|---|---|
| R. L. Dossett | Tullahoma |
| A. E. Ray | Tullahoma |
| J. H. Farrar | Hillsboro |
| J. A. Mitchell | Tullahoma |

### *Davidson County.

*City address for Nashville.

| | |
|---|---|
| W. H. Witt | Doctors Building |
| Jno M. Lee | Doctors Building |
| Henry A. Calloway | Doctors Building |
| W. G. Kennon | Doctors Building |
| Herschell Ezell | Doctors Building |
| C. N. Cowden | Doctors Building |
| W. C. Dixon | Doctors Building |
| Thos. D. McKinney | Doctors Building |
| W. E. Reynolds | Doctors Building |
| J. H. Lassiter | Doctors Building |
| W. B. Anderson | Doctors Building |
| Herman Spitz | Doctors Building |
| J. M. King | Doctors Building |
| L. M. Lanier | Doctors Building |
| W. O. Floyd | Doctors Building |
| John Overton | Doctors Building |
| D. R. Pickens | Doctors Building |
| Eugene Orr | Doctors Building |
| F. B. Dunklin | Doctors Building |
| L. W. Edwards | Doctors Building |
| T. G. Pollard | Doctors Building |
| R. C. Derivaux | Doctors Building |
| J. O. Manier | Doctors Building |
| O. N. Bryan | Doctors Building |
| L. E. Burch | Doctors Building |
| O. H. Wilson | Doctors Building |

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|---|---|
| J. Q. Owsley | Doctors Building |
| C. C. McClure | Doctors Building |
| C. E. Brush | Doctors Building |
| A. W. Harris | Doctors Building |
| W. D. Haggard | Doctors Building |
| W. A. Bryan | Doctors Building |
| A. M. Forrester | Doctors Building |
| T. A. Leonard | Doctors Building |
| W. A. Oughterson | Doctors Building |
| O. A. Oliver | Doctors Building |
| W. M. McCabe | Doctors Building |
| Bruce P'Poole | Doctors Building |
| Van H. Coles | Doctors Building |
| Sam P. Bailey | Jackson Building |
| S. S. Crockett | Jackson Building |
| J. F. Gallagher | Jackson Building |
| Alberto Hudson | Jackson Building |
| T. A. Whitfield | Jackson Building |
| Robt. Caldwell | Jackson Building |
| A. G. Nichol | Jackson Building |
| Jno. A. Gaines | Jackson Building |
| McPheeters Glascow | Jackson Bpilding |
| J. D. Lester | Jackson Building |
| M. G. Buckner | Jackson Building |
| Perry Bromberg | Jackson Building |
| A. L. Sharber | Jackson Building |
| A. C. Bailey | Jackson Bilding |
| E. L. Robetrs | Jackson Building |
| E. A. Sayers | Jackson Building |
| R. H. Perry | Jackson Building |
| D. R. Neil | Jackson Building |
| Richard A. Barr | Eve Building |
| Duncan Eve, Sr | Eve Building |
| Geo. H. Price | Eve Building |
| Henry Cox | Eve Building |
| E. E. Brown | Eve Building |
| S. R. Teachout | Eve Building |
| W. S. Fessey | Eve Building |
| G. R. Long | Eve Building |
| Harrington Marr | Eve Building |
| Hugh Barr | Eve Building |
| John E. Hall | Eve Building |
| T. D. Hall | Eve Building |
| Duncan Eve, Jr | Eve Building |
| J. Henry Litterer | Eve Building |
| M. M. Cullum | Hitchcock Building |
| F. E. Hasty | Hitchcock Building |
| Paul DeWitt | Hitchcock Building |
| Irving Simon | Hitchcock Building |
| Joe W. Fenn | Hitchcock Building |
| Y. W. Haley | Hitchcock Building |
| J. L. Bryan | Hitchcock Building |
| Hilliard Wood | Independent Life Bldg. |
| R. A. Harrington | Independent Life Bldg. |
| J. T. Watkins | Independent Life Bldg. |
| J. W. Handley | Independent Life Bldg. |
| W. R. Sifford | Independent Life Bldg. |
| Robert Sullivan | Independent Life Bldg. |
| J. P. Kellar | 142 7th Ave. N. |
| H. M. Tigert | 142 7th Ave. N. |
| S. M. Bloomstein | 142 7th Ave. N. |
| Howard King | 142 7th Ave. N. |
| Sam C. Cowan | 142 7th Ave. N. |
| C. L. Hill | 142 7th Ave. N. |
| P. G. Morrissey | 142 7th Ave. N. |
| H. B. Smith | 142 7th Ave. N. |
| L. J. Caldwell | 142 7th Ave. N. |
| C. H. Hamilton | 142 7th Ave. N. |
| John W. Stevens | City View Sanitarium |
| W. P. Robinson | 729 4th Ave. S. |
| A. N. Hollabaugh | 801 5th Ave. S. |
| R. L. Jones | 1401 Elmwood Ave |
| Bate Dozier | 802 Monroe St. |
| Robert Brown | 151 7th Ave. N. |
| C. S. McMurray | 180 8th Ave. N. |
| W. J. Morrison | 159 8th Ave. N. |
| W. H. Tanksley | 155 8th Ave. N. |
| Geo. A. Hatcher | Central States Hosp. |
| J. R. Tarpley | Gallatin Pike |
| W. G. Black | 1505 Church St. |
| Wm. Litterer | 631 2nd Ave. S. |
| R. W. Billington | 180 8th Ave. N. |
| C. F. Anderson | 184 8th Ave. N. |
| R. W. Grizzard | 302 6th Ave. N. |
| E. L. Bishop | 405 7th Ave. N. |
| C. W. Brown | 418 Monroe St. |
| W. S. Farmer | Central Hospital |
| J. H. Preston | 4604 Charlotte |
| C. C. Sullivan | 155 8th Ave. N. |
| D. R. Thomas | Halstead Hosp., Halstead, Kans. |
| J. D. Goodwin | 153 7th Ave N. |
| Benjamin T. Terry | 700 5th Ave S. |
| Wm. D. Sumpter | 155 8th Ave. N. |
| R. W. Dake | 218 7th Ave. N. |
| Larkin Smith | 154 8th Ave. N. |
| Maurice L. Connell | Davidson Co. Tuber. Hosp- |
| John Ross | 118 E. 60th St., New York, N. Y. |
| S. T. Ross | 309 6th Ave. N. |
| Lloyd Arnold | City Hospital |
| Horace C. Gayden | St. Thomas Hospital |
| A. C. Douglas | 504 2nd Ave. S. |
| Jas. A. Becton | City View Sanitarium |
| E. A. Sutherland | Madison, Tenn. |
| C. U. Freiberg | 101 E. Unaka Ave., Johnson City |
| J. M. Cullum | 4800 Charlotte |
| H. S. Shoulders | 147 7th Ave. N. |
| G. W. Holcomb | Hydes Ferry Pike |
| R. E. Wyatt | 1408 Buchanan St. |
| E. Feldman | 198 N. Main St., Memphis |
| J. P. McNeil | Dante, Va. |
| W. E. McCampbell | 802 Woodland |
| Margaret O. Davis | 208 8th Ave. S. |
| G. C. Savage | 168 8th Ave. N. |
| Jos. E. Harris | Murfreesboro Pike |
| Deering J. Roberts | Dickerson Pike |
| R. N. Herbert | Prot. Hospital |
| W. A. Horan | 147 7th Ave. N. |
| Jas. P. Crawford | 147 7th Ave. N. |
| Chas. Thompson | 220 Capitol Blvd |
| E. L. Gleaves | 210½ 5th Ave. N. |
| J. M. McLaughlin | Murfreesboro Rd. |
| Jno R. Miller | Joelton |
| J. J. Mullowney | MeHarry Medical Col. |
| D. T. Kimbrough | 2222 State St. |
| H. L. Hatcher | Central Hospital |
| W. S. Rude | Ridgetop |
| A. B. Jones | 1502 Cedar Lane |
| G. G. Duncan | Baylor Med. Sch., Dallas, Texas |
| C. F. Friedman | 222 W. Crevants, Pensacola, Fla. |
| J. H. Castleman | Davidson Co. Hosp. |
| W. J. Core | 801 Woodland St. |
| Jno. J. Lentz | Hydes Ferry Pike |
| Boyd Bogle | Hitchcock Bldg. |
| W. H. Leake | Vanderbilt Hosp. |
| B. P. Gilbert | 920 Gallatin Rd. |
| J. W. Maddin | 169 4th Ave. N. |
| Howard King | 142 7th Ave. N. |
| J. M. Pace | St. Thomas Hosp. |
| E. B. Cayce | Hitchcock Bldg. |
| Henry Morris | Ind. Life. Bldg. |
| C. R. Crutchfield | 1533 Demonbreun St. |
| Roy Boyd Harrison | St. Thomas Hosp. |
| Michael Campbell | Lebanon Pike |
| Jos. E. Harris | Murfreesboro Rd. |

### Decatur County.

| | |
|---|---|
| J. M. Crider | Decaturville |
| J. G. McMillan | Decaturville |
| J. L. McMillan | Decaturville |
| R. Y. Fisher | Parsons |
| A. G. Hufstedler | Decaturville |
| F. J. Bracy | Parsons |
| J. E. Ingram | Parsons |

### DeKalb County.

| | |
|---|---|
| G. M. Allison | Smithville |

L. D. Allen — Smithville
T. J. Potter — Smithville
M. A. McPhearson — Alexander
T. J. Smith — Silver Point
L. S. Love — Silver Point
T. J. Bratton — Liberty

### Dickson County.

W. S. Scott — Dickson
H. C. Guerin — Dickson
W. W. Walker — Dickson
W. J. Sugg — Dickson
H. Weaver — Dickson
C. M. Lovell — Dickson
J. E. Mathis — Burns
L. F. Loggins — Charlotte
A. C. Dickson — VamLeer
J. E. Guerin — Slayden
H. P. Spencer — Burns
G. G. Cannon — Cumberland Furnace

### Dyer County.

T. D. Rice — Tigrett
A. H. Moody — Dyersburg
E. H. Baird — Dyersburg
J. P. Baird — Dyersburg
O. Dulaney — Dyersburg
J. G. Price — Dyersburg
W. P. Watson — Dyersburg
J. B. Berry — Dyersburg
John Cook — Jefferson City, Mo.
N. S. Walker — Dyersburg
B. G. Marr — Dyersburg
J. D. Brewer — Dyersburg
J. W. Wynne — Newbern
S. T. Haskins — Newbern
E. O. Cherry — Dyersburg
L. B. Hill — Highland Hosp. Asheville, N. C.
D. T. Austin — Miston
J. D. Phillips — Bogota
T. D. McDougal — Finley
W. G. Shelton — Lenox
R. L. Motley — Dyersburg
C. A. Turner — Dyersburg
J. H. Smith — Trimble

### Franklin County.

M. M. Huling — Winchester
A. M. Huling — Estill Springs
G. S. Warren — Decherd
W. F. Smith — Decherd
W. E. Murrell — Winchester
John P. Grisard — Winchester
J. H. Marable — Cowan
G. S. Wright — Cowan
R. M. Kirby-Smith — Sewanee
A. L. Lear — Sewanee
W. B. Sutton — Huntland
E. A. Downey — Huntland
L. A. Templeton — Huntland
G. W. Piper — Alto

### Giles County.

R. N. Herbert — Aspen Hill
A. J. Lancaster — Pulaski
R. E. Warren — Pulaski
G. E. Lancaster — Pulaski
J. A. LaRue — Pulaski
C. A. Abernathy — Pulaski
G. A. Grimes — Lynville
J. K. Blackburn — Pulaski
W. D. Abernathy — Pulaski
G. D. Butler — Pulaski
Joe B. Wright — Lynville
J. G. Waldrop — Lynville
A. W. Deane — Pulaski
A. M. Allen — Buford
J. E. Baugh — Elkton
W. P. Baugh — Elkton
W. F. Copeland — Campbellville
L. A. Edmondson — Bethel
Jno. H. Morris — Pulaski
W. H. Call — Minor Hill
F. C. Gaines — Bodenham

### Gibson County.

W. C. McRee — Trenton
B. T. Bennett — Trenton
J. C. Moore — Route 5, Trenton
J. H. Rozzell — Trenton
G. W. Penn — Humboldt
Sidney Thompson — Eastern State Hos., Bearden
G. W. Oliver — Medina
W. B. Keeton — Medina
M. D. Ingram — Eaton
B. D. Caldwell — Milan
S. E. Walker, S. S. P. H. S. Hos., No. 67, 11th and Harison St., — Kansas City, Mo.
A. J. Skiles — Kenton
John Jackson — Dyer
C. B. A. Turner — Dyer
T. E. Wyatt — Yorkville
W. L. Meddling — Dyer
W. J. Barker — Route 2, Trenton
S. E. Caldwell — Milan
B. S. Penn — Humboldt
T. N. Cockrane — Trenton
A. A. Donaldson — Trenton
E. A. Gulledge — Bradford

### Greene County.

C. P. Fox — Greeneville
C. P. Fox, Jr. — Greeneville
W. T. Mathes — Greeneville
S. T. Brumley — Greeneville
J. B. Bell — Greeneville
E. C. Donald — Greenville
S. W. Woodyard — Greeneville
Lloyd Dyer — Greeneville
F. C. Britton — Greeneville
J. H. Hawkins — Baileyton
M. A. Blanton — Baileyton
W. M. Bright — Chucky
I. B. Brown — Mosheim
E. W. Myers — Bull's Gap
C. L. Boyd — Greeneville
J. F. Lane — Greeneville
H. M. Taylor — Greeneville
J. S. Holt — Greeneville
A. M. Jamison — Greeneville
G. N. Bailey — Baileyton
J. C. Moore — Jearaldstown

### *Hamilton County.

*City Address for Chattanooga.

H. P. Larimore — Volunteer Bldg.
John B. Steele — Volunteer Bldg.
T. E. Abernathy — Volunteer Bldg.
J. H. Revington — Volunteer Bldg.
J. B. Haskins — Volunteer Bldg.
G. B. Alder — Volunteer Bldg.
Geo. R. West — Volunteer Bldg.
Leopold Shumacher — Volunteer Bldg.
N. J. Minter — Volunteer Bldg.
H. Renner — Volunteer Bldg.
F. J. Hackney — Volunteer Bldg.
J. C. Brooks — Volunteer Bldg.
A. W. Hillard — Volunteer Bldg.
Samuel H. Long — Volunteer Bldg.
Dannel N. Williams — Volunteer Bldg.
R. O. Currey — Volunteer Bldg.
J. H. Barnett — Volunteer Bldg.
G. Manning Ellis — Volunteer Bldg.
J. D. L. McPheeters — Volunteer Bldg.
E. H. Adkins — Volunteer Bldg.
S. S. Marchbanks — Volunteer Bldg.
G. Madison Roberts — Volunteer Bldg.
S. T. Hubbard — Volunteer Bldg.
Otis H. Johnson — Volunteer Bldg.
W. J. Winter — Volunteer Bldg.
H. H. Hampton — Volunteer Bldg.
J. Webster Horton — James Bldg.
R. M. Colemore — Volunteer Bldg.
Wm. E. Anderson — James Bldg.

| | |
|---|---|
| H. L. Fancher | James Bldg. |
| J. Quigg Fletcher | James Bldg. |
| E. B. Wise | James Bldg. |
| B. F. Travis | James Bldg. |
| E. A. Gilbert | James Bldg. |
| E. M. Harrison | James Bldg. |
| Stanton H. Barrett | James Bldg. |
| Wm. D. Anderson | James Bldg. |
| E. W. Patton | Hamilton Bank Bldg. |
| Wilard Steele | Hamilton Bank Bldg. |
| M. A. Meacham | Hamilton Bank Bldg. |
| H. A. Laws | Hamilton Bank Bldg. |
| J. H. Taylor | Hamilton Bank Bldg. |
| J. W. MacQuillan | Hamilton Bank Bldg. |
| Raymond Wallace | Hamilton Bank Bldg. |
| B. S. Wert | Van Deman Bldg. |
| E. E. Reisman | Van Deman Bldg. |
| G. Victor Williams | Van Deman Bldg. |
| J. B. Vigle | Van Deman Bldg. |
| S. I. Yarnell | 1121 E. 7th St. |
| E. C. Anderson | 726 Market St. |
| W. T. Hope | 508 Vine St. |
| E. D. Newell | 707 Walnut St. |
| C. H. Gurney | 554 S. Crest Road |
| W. M. Orr | Alton Park, via Hixon Tenn. |
| J. C. Cunningham | Hixon, Tenn. |
| J. M. Selden | 247 Merrimore Ave., Asheville, N. C. |
| Jay G. Wood | Rock Face, Ga. |
| Frank Trester Smith | 404 Oak St. |
| J. B. McGhee | 224 1-2 E. Main St. |
| N. S. Ritchie | Daisy, Tenn. |
| O. H. Null | Dodds & Cham |
| Edward T. Newell | 707 Walnut St. |
| Stewart Lawill | 602 Georgia Ave. |
| J. E. Nelson | St. Elmo, Tenn. |
| W. H. Cheny | 710 Georgia Ave. |
| B. L. Jacobs | Erlanger Hospital |
| W. L. Nichols | Box 126, Whitehall, Tenn. |
| Franklin B. Bogart | B 710 Georgia Ave. |
| Robt. H. Tatum | 3915 Ave. "E" |
| T. C. Crowell | 707 Walnut St. |
| L. T. Stem | 3605 Ave. L. |
| J. J. Gee | Loveman Bldg. |
| R. L. Allen | Daisy, Tennessee |
| W. E. Vaden | St. Elmo, Tenn. |
| W. G. Bogart | 518 Georgia Ave. |
| W. R. Irish | South Pittsburg, Tenn. |
| Geo. T. Ryan | Times Bldg. |
| S. A. Fowler | 2601 Cowart Ave. |
| W. A. Applegate | 1300 Pa. Ave., Washington, D. C. |
| German P. Haymore | 602 Georgia Ave. |
| L. C. Williamson | East Lake |
| W. C. Bogart | 518 Georgia Ave. |
| J. M. Broyles | East Lake |
| A. G. Broyles | Graysville, Tenn. |
| W. I. Hillas | 514 Mabel St. |
| H. M.. Barker | Olden, Tex. |
| J. E. Green | 224 1-2 Main St. |
| E. R. Hochestetter, Jr. | 1504 Ringgold Rd. |
| Y. L. Abernathy | Temple Court |
| J. C. Eldridge, Jr. | N. Chattanooga |
| James H. Atlee | 219 Oak St. |
| W. A. Banks | 400 Chamberlain Ave. |
| C. A. Skelton | Cor. Main & Market |
| K. D. Davis | Loveman Bldg. |
| J. S. B. Woolford | 602 Georgia Ave. |
| D. C. Shelton | Jasper, Tenn. |
| George P. Wilbanks | Rossville, Tenn. |
| C. Holtzclaw | 213 E. 8th St. |
| Dowling C. Morris | Cor. Main & Market St. |
| J. O. Adams | Alton Park |
| B. C. Hale | 500 4th Ave., No. |
| Fred B. Stapp | 9 1-2 East 8th. St. |
| W. W. Dickey | Volunteer Bldg. |
| E. L. Jenkins | Soddy, Tennessee |
| O. B. Wunschow | 114 West 7th St. |
| T. N. Eblen | Tyner, Tenn. |
| James A. Smith | Volunteer State Bldg. |
| J. M. Hogshead | 602 Georgia Ave. |
| A. E. Goodloe | James Bldg. |
| L. P. Brooks | Van Demon Bldg. |
| J. H. Holman | Elks Club |
| O. L. Blackwell | Shepherd, Tenn. |
| J. L. Bibb | Hamilton, Bank, Bldg. |
| E. B. Anderson | Hamilton Bank Bldg. |
| Jas. W. Johnson | Volunteer Bank Bldg. |
| W. E. Lindsay | Volunteer Bank Bldg. |
| I. H. Hager | Alton Park |

**Grundy County.**

| | |
|---|---|
| T. F. Taylor | Monteagle |
| David H. Bryan | Palmer |
| Henry Lockhart | Coalmont |
| C. W. Hembree | Tracey City |
| W. P. Stone | Tracey City |
| U. S. Bowden | Pelham |
| L. A. Carden | Pelham |
| W. A. Jackson | Monteagle |
| W. L. McCaleb | Pelham |

**Hamblen County.**

| | |
|---|---|
| D. E. Shields | Morristown |
| A. G. Ruble | Morristown |
| L. H. Milligan | Moristown |
| W. E. Howell | Morristown |
| P. L. Henderson | Morristown |
| P. L. Brock | Morristown |
| S. M. Ryburn | Moristown |
| C. T. Carroll | Morristown |
| F. T. Painter | Morristown |
| J. F. Campbell | Tate Springs |
| J. W. Pierce | Tate Springs |
| O. R. Tomlinson | Tate Springs |
| H. G. Pangle | Russellville |
| G. W. Smithers | Rutledge |
| B. L. McDonald | Idol |
| I. D. Walker | Alpha |

**Hardin County.**

| | |
|---|---|
| G. C. Morris | Savannah |
| E. B. Walker | Savannah |
| G. P. Chambers | Savannah |
| B. M. Williams | Kendrick, Miss. |
| C. F. Gilbert | Savannah |
| O. H. Wiliams | Savannah |
| L. C. Smith | Morris Chapel |
| James Mackey | Sardis |
| L. A. Parker | Saltillo |
| Granville I. Walker | Hominy, Okla. |

**Haywood County.**

| | |
|---|---|
| J. T. Allen | Brownsville |
| J. C. Norvell | Brownsville |
| E. R. Mulheron | Brownsville |
| J. L. Edwards | Brownsville |
| T. C. Chapman | Brownsville |
| G. T. Scott | Brownsville |
| G. C. Mulheron | Brownsville |
| A. H. Sorrelle | Brownsville |

**Henry County..**

| | |
|---|---|
| G. T. Abernathy | Paris |
| Horace McSwain | Paris |
| I. .A. McSwain | Paris |
| C. H. Johnson | Paris |
| A. H. Miller | Paris |
| A. A. Oliver | Paris |
| Geo. McSwain | Paris |
| M. C. Wiggins | Paris |
| R. J. Perry | Springville |
| Edwin Plotkin | Pope |
| Earl Conger | Jackson |
| H. .C. Raines | Paris |
| R. A. Grainger | Paris |
| Elroy Scruggs | Paris |
| Chas. Hendley | Paris |
| J. T. Freeman | Paris |

**Henderson County.**

| | |
|---|---|
| S. T. Parker | Lexington |
| W. F. Huntsman | Lerington |
| R. H. Milam | Lexington |

Geo. A. Brandon — Lexington
J. M. Arnold — Lexington
C. H. Johnston — Lexington
E. G. Maxwell — Darden
J. F. Graves — Juno
W .I. Howell — Wildesrville
C. E. Bolen — Wildersville
D. W. Bradfield — Wildersville
J. N. Smith — Cuba Landing
J. C. Stinson — Reagen
R. L. Wylie — Scott's Hill
R. T. Keeton — Scotts Hill
S. H. Brazelton — Sardis
J. T. Keeton — Sardis
J. H. England — Luray
W. T. Watson — Lexington
J. E. Powers — Lexington
J. W. Hendrix — Parsons
E. E. Waller — Juno
M. P. Boyd — Yuma
J. P. Joyce — Lexington
Jesse F. Goff — Chesterfield

### Hardeman County

C. L. Frost — Middleton
Leon Pope — Hickory Valley
R. W. Tate — Bolivar
E. W. Cocke — Bolivar

### Hickman County.

C. V. Stephenson — Centreville
J. B. Webb — Centreville
J. S. Beasley — Centreville
W. K. Edwards — Centreville
A. N. Doyle — Little Lot
W. D. Cagle — Loberville
R. P. Beasley — Lyle
G. N. Springer — Hohenwald

### Jackson County.

Frank B. Clark — Haydenburg
F. O. Cornwell — Haydenburg
M. N. McCoin — Gainsboro
J. H. Quarles — Whitleyville
Ronis R. Anderson — Gainsboro
R. C. Gaw — Gainsboro
C. E. Reeves — Gainsboro

### Jefferson County.

W. F. King — Jefferson City
H. L. Tarr — Jefferson City
B. M. Tittsworth — Jefferson City
N. C. Doane — New Market
Ben E. Cline — Straw Plains
Wm. E. Roberts — Talbotts
J. I. Huggins — Dandridge
W. R. Cross — Dandridge
H. L. Campbell — Strawberry Plains
N. M. Dukes — Strawberry Plains
J. H. Walker — Jefferson City
Turner Caldwell — Dandridge
W. H. Taylor — New Market
P. A. Tinsley — Dandridge

### *Knox County.

*City Address for Knoxville.

Louis A. Hann — Holston Bank Bldg.
W. P .Atchley — Holston Bank Bldg.
Beecher L. Ogle — Holstn Bank Bldg.
J. Victor Henderson — Holston Bank Bldg.
Olin Rodgers — Holston Bank Bldg.
J. P. Tillery — Holston Bank Bldg.
Eben Alexander — Holston Bank Bldg.
Wm. Bowen — Holston Bank Bldg.
C. B. Jones — Holston Bank Bldg.
V. C. Dail — Holston Bank Bldg.
W. K. Slater — Holston Bank Bldg.
B. D. Bosworth — Holston Bank Bldg.
W. T. DeSautelle — Holston Bank Bldg.
W. A. Catlett — Holston Bank Bldg.
J. B. Theilen — Holston Bank Bldg.
E. H. Ford — Holston Bank Bldg.
John T. Barbee — Holston Bank Bldg.
J. Q. R. West — Arnstein Bldg.
A. L. Rule — Arnstein Bldg.
W. M. Potter — Arnstein Bldg.
R. L. McReynolds — Holston Bank Bldg.
W. N. Lynn — Arnstein Bldg.
M. S. Roberts — Arnstein Bldg.
H. L. Carroll — Arnstein Bldg.
W. C. McCammon — Arnstein Bldg.
Andrew Smith — Arnstein Bldg.
J. Marshall Lee — Arnstein Bldg.
R. E. Donahue — Arnstein Bldg.
M. L. Black — Arnstein Bldg.
W. D. Richards — Arnstein Bldg.
M. C. Wright — Empire Bldg.
W. A. Greer — Empire Bldg.
Seale B. Gillespie — Empire Bldg.
G. R. Todd — Empire Bldg.
J. J. Greer — Empire Bldg.
J. A. Sisk — Empire Bldg.
L. L. Sheddan — Burwell Bldg.
M. M. Copenhaver — Burwell Bldg.
Kyle Copenhaver — Burwell Bldg.
E. G. Wood — Burwell Bldg.
R. B. Layman — Burwell Bldg.
W. P. Wood — Burwell Bldg.
O. W. Hill — 522 W. Church St.
Lucius D. Hill, Jr. — 522 W. Church St.
S. D. Acuff — American Bank Bldg.
Jesse C. Hill — Eastern State Hos., Bearden
Vernon C. Lane — Keystone Bldg.
D. H. Williams — Box 410, Knoxville
B. V. Howard — W. Church St.
J. J. Ellis — Deaderick Bldg.
S. F. Casenburg — McTownlee Bldg.
Wm. A. Shelton — W. Church St.
Carl R. Martin — Fountain City
H. C. Cunningham — W. Church St.
W. F. Christenberry, Lonsdale — Knoxville
Walter S. Nash — Wolnut St.
H. T. McClain — Commerce Ave.
C. J. Carmichael — Walnut St.
C. F. Mooney — Keystone Bldg.
H. J. Kelso — W. Church St.
S. H. Hodge — Walnut St.
R. P. Oppenheimer — W. Church St.
R. E. LeeSmith — Bearden, Tenn.
H. L. Peters — Gay St.
Walter Luttrell — McTownlee Bldg.
Wm. Delpeuch — McGee St.
H. C. Long, Ft. Sanders Hosp. — Knoxville
H. E. Christenberry — W. Church St.
L. C. Blalock — Deaderick Bldg.
S. R. Miller — W. Church St.
A. G. Kern — Walnut St.
C. M. Capps — McTownlee Bldg.
H. H. McCampbell — Walnut St.
J. B. Parker — Inskip, Tenn.
A. B. Peck — Gay St.
A. R. Garrison — Byington, Tenn.
Robert Patterson — W. Church St.
R. V. DePue — Walnut St.
W. L. Wallace — N. Broadway
R. M. Young — Walnut St.
T. F. Fitzgerald, RFD — Knoxville
Eugene Abercrombie — McTownlee Bldg.
B. B. Cates — W. Clinch St.
W. R. Cochrane — Walnut St.
W. S. Austin — W. Church St.
C. B. Evans, Lonsdale — Knoxville
Harley L. Acuff — Gay St.
R. H. Newman — Young Bldg.
J. D. Henderson — Knoxville
E. A. Guynes — Walnut St.
J. D. Weaver — W. 5th Ave.
V. D. Holloway — Walnut St.
W. G. Casenburg — N. Broadway
Thos. P. Miller — Walnut St.
W. C. McClain — Commerce Ave.
J. M. J. VanDerGriff — Fountain City, Tenn.
J. B. Swafford, East'n State Hosp. Bearden, Tenn.

| | |
|---|---|
| Joseph Lyons | Oak Hill Ave. |
| A. G. Kyle | Walnut St. |
| J. H. Kincaid | W. Church St. |
| F. S. McTellier | N. Broadway |
| E. R. Zemp | Walnut St. |
| S. B. Peters | McTownlee Bldg. |
| R. F. McCrary | Keystone Bldg. |
| Herbert Acuff | Young Bldg. |
| A. W. Carr | Atlantic Ave. |
| F. L. Young | Young Bldg. |
| C. H. Henderson | Mascot, Tenn. |
| H. J. Bowlin | Mascot, Tenn. |
| Thos. Ap. R. Jones | Walnut St. |
| W. H. L. White | Box 33 Knoxville |
| G. W. Booker | Gay St. |
| J. W. Carmichael | N. Central Ave. |
| M. M. Herrell | Powels Sta., Tenn. |
| R. G. Reaves | Acuff-Young Bldg. |
| Earle Ford | Walnut St. |
| Thos. Barry | Empire Bldg. |
| W. L. Holt | University, Tenn. |
| G. C. Sumpter | Hoop, Tenn. |
| W. A. Boies | W. Church St. |
| J. H. Keeling | W. Church St. |
| H. L. Kitts | Acuff-Young Bldg. |

### Lauderdale County.

| | |
|---|---|
| W. K. Lackey | Ripley |
| J. R. Osteen, RFD 5 | Ripley |
| J. R. Lewis | Ripley |
| W. V. Sanford | Ripley |
| J. W. Sanford | Ropley |
| J. B. Lackey | Ripley |
| S. M. Glenn, RFD | Ripley |
| C. B. Walker, RFD 1 | Ripley |
| T. E. Miller, RFD | Ripley |
| C. R. Morrison | Curve |
| W. H. Tucker, RFD 3 | Halls |
| Wm. Hall, RFD 3 | Halls |
| A. P. Massingill | Halls |
| J. L. Dunavant, RFD | Henning |
| W. C. Sanford | Henning |
| H. W. Sanford | Henning |
| R. B. Sanford, RFD 2 | Henning |
| J. H. Lackey | Ripley |
| Thomas J. Pipkin | Henning |
| S. T. Chapman | Halls |
| J. C. Blankenship | Halls |
| R. B. Wilson | Gates |

### Lake County.

| | |
|---|---|
| J. D. Alexander | Tiptonville |
| R. W. Griffith | Tiptonville |
| E. T. Kelty | Tiptonville |
| W. S. Alexander | Ridgley |
| R. B. Griffin | Ridgley |
| W. L. Summers | Ridgley |
| J. A. Jones | Wynnburg |
| J. F. Griffin | Chonchilla, Calif. |

### Loudon County.

| | |
|---|---|
| J. P. Leeper | Lenoir City |
| R. DeWitt McDonald | Lenoir City |
| J. G. Eblen | Lenoir City |
| T. J. Hickman | Lenoir City |
| G. Malcon Hall | Lenoir City |
| J. J. Harrison | Loudon |
| H. A. P. Harrison | Loudon |
| Halbert Robinson | Loudon |
| Ambrose Jones | Greenback |

### Lincoln County.

| | |
|---|---|
| T. A. Patrick | Fayetteville |
| W. F. Cannon | Fayetteville |
| C. L. Goodrich | Fayetteville |
| J. M. McWilliams | Fayetteville |
| W. S. Joplin | Petersburg |
| A. L. Sloan | Boons Hill |
| M. C. Wilson | Fayetteville |
| E. K. Blair | Fayetteville |
| J. D. Bryant | Fayetteville |
| J. M. Anderson | Fayetteville |
| J. M. Wyatt | Fayetteville |
| F. S. McRady | Petersburg |
| A. G. Hays | Coldwater |

### Macon County.

| | |
|---|---|
| M. H. Allen | LaFayette |
| D. D. Howser | LaFayette |
| Patterson East | LaFayette |
| J. Y. Freeman | LaFayette |
| W. W. Tucker, RFD 7 | LaFayette |
| A. Y. Kirby | LaFayette |
| H. Clay Hesson | Red Boiling Springs |

### Madison County.

| | |
|---|---|
| O. O. Jones | Jackson |
| J. L. Crook | Jackson |
| J. A. Crook | Jackson |
| J. A. Blackman | Jackson |
| J. M. Arnold | Jackson |
| B. C. Arnold | Jackson |
| A. B. Dancy | Jackson |
| W. T. Fitts | Jackson |
| Herman Hawkins | Jackson |
| W. G. Saunders | Jackson |
| W. F. Rochelle | Jackson |
| A. H. Clark | Jackson |
| G. L. Williamson | Jackson |
| S. A. Henderson | Jackson |
| R. S. Brown | Jackson |
| Jas. W. McClaren | Jackson |
| G. F. Jones, RFD1 | Jackson |
| J. D. Hopper, RFD2 | Jackson |
| F. M. Murtaugh | Jackson |
| J. T. Herron | Jackson |
| S. M. Herron | Jackson |
| H. L. Jones | Jackson |
| Kelly Smythe | Bemis |
| L. L. Webb | Carroll |
| R. L. Greer | Oakfield |
| G. W. Brasher | Spring Creek |
| C. A. Chaffee | Cordova |
| J. M. Curry | Mercer |
| Chas. F. Webb | Jackson |
| W. B. Eason | Jackson |
| Frank B. Hamilton | Jackson |
| W. C. Duckworth | Jackson |
| J. G. Cottongim | Medon |
| James L. Fields, 301-2 McCowart-Mercer Bldg. | Jackson |

### Marshall County.

| | |
|---|---|
| J. A. Hardison | Jewisburg |
| T. R. Logan | Lewisburg |
| T. E. Reed | Lewisburg |
| J. B. White | Lewisburg |
| S. T. Hardison | Lewisburg |
| L. E. Wheat | Lewisburg |
| C. C. Hardison | Lewisburg |
| C. W. Womack | Lewisburg |
| R. G. Baxter | Caney Springs |
| W. T. Eatherly | Chapel Hill |
| J. W. Reed | Belfast |
| Garrett White | Chapel Hill |
| A. H. Culbertson | Chapel Hill |
| Fred H. Gaut | Cornersville |
| C. W. Dickey | Cornersville |
| C. P. Marsh | Petersburg |
| W. T. Sharp | Farmington |
| S. T. Moffitt | Cornersville |
| J. C. Crunk | Belfast |
| D. M. Dryden | Petersburg |

### Maury County.

| | |
|---|---|
| Geo. Williamson | Columbia |
| W. K. Sheddan | Columbia |
| L. E. Ragsdale | Columbia |
| R. S. Perry | Columbia |
| J. W. Wilks | Columbia |
| Watt Yieser | Columbia |
| O. J. Porter | Columbia |
| W. E. Martin | Columbia |
| C. A. Forgey | Columbia |
| P. H. Faucett | Columbia |
| C. D. Nowlin | Columbia |

| | |
|---|---|
| A. S. Horseley | Columbia |
| T. B. Brown | Columbia |
| P. D. Biddle | Columbia |
| Robert Pillow, Sr | Columbia |
| Robert Pillow, Jr | Columbia |
| J. H. Jones | Mt. Pleasant |
| J. C. Morrison | Mt. Pleasant |
| W. H. Kittrell | Mt. Pleasant |
| G. C. English | Mt. Pleasant |
| M. A. Beasley | Hampshire |
| J. C. Hardin | Springhill |
| W. R. Webb | Hampshire |
| R. M. Church | Williamsport |
| E. M. Ragsdale | Santa Fe |
| B. W. Woodard | Springhill |
| J. L. Spiceland | Gordonsburg |
| Chas. D. Walton | Mt. Pleasant |
| H. O. Anderson | Williamsport |
| J. S. Covey | Columbia |
| C. O. Fowler | Springhill |
| T. J. Hardison | Carters Creek |
| M. F. Walker | Santa Fe |
| C. J. Hurlburt | Columbia |

### Monroe County.

| | |
|---|---|
| H. C. Shearer | Madisonville |
| R. C. Kimbrough | Madisonville |
| B. W. Bagwell | Madisonville |
| L. L. Barnes | Sweetwater |
| J. A. McCullom | Sweetwater |
| J. A. Hardin | Sweetwater |
| W. A. McClain | Sweetwater |
| T. M. Roberts | Sweetwater |
| W. H. Arrants | Sweetwater |
| C. S. Jenkins | Tellico Plains |
| B. T. Crofts | Tellico Plains |
| W. W. Leonard | Mt. Vernon |
| W. A. Rogers | Tellico Plains |
| W. H. Nlies | Tellico Plains |

### Montgomery County.

| | |
|---|---|
| H. A. Nesbitt | Clarksville |
| B. F. Runyon | Clarksville |
| J. W. Brandau | Clarksville |
| Geo. Brandau | Clarksville |
| J. H. Ledbetter | Clarksvile |
| R. B. Macon | Clarksville |
| M. W. Ellis | Clarksville |
| H. H. Edmondson | Clarksville |
| M. L. Hughes | Clarksville |
| John Ross | Clarksville |
| F. J. Runyon | Clarksville |
| Lewis Neblett | Clarksville |
| Roy Webb | St. Bethlehem |
| I. E. Hunt | Clarksville |

### McMinn County.

| | |
|---|---|
| G. R. Arrants | Athens |
| R. A. Brock | Athens |
| Gus Shipley | Athens |
| G. W. Stanton | Athens |
| Maj. J. R. Nankivell | Athens |
| W. J. Abel | Decatur |
| D. P. Brindle | Englewood |
| Joseph McGahhey | Niota |
| J. O. Nichols | Etowah |
| H. F. Taylor | Calhoun |

### McNairy County.

| | |
|---|---|
| H. C. Sanders | Selmer |
| R. M. Kendrick | Selmer |
| W. W. Wallace | Selmer |
| E. G. Sanders | Stantonville |
| E. M. Smith | Bethel Springs |
| J. G. Howell | Stantonville |
| W. M. Barnes | Finger |
| J. K. Smith | Selmer |
| E. L. Baker | Adamsville |
| Thos. A. Kirkland, 201 Bread St. | Binghampton |
| Jno. Abernathy | Corinth, Miss. |

### Overton County.

| | |
|---|---|
| W. M. Brown | Livingston |
| W. M. Breeding | Livingston |
| J. W. Davis | Windle |
| J. T. McDonald | Nettle Carrier |
| A. B. Qualls | Livingston |

### Obion County.

| | |
|---|---|
| J. D. Carlton | Union City |
| H. W. Qualls | Union City |
| M. A. Blanton | Union City |
| Ira Park | Union City |
| K. R. Glennan | Obion |
| J. L. Roland | Obion |
| E. A. Boswell | Troy |
| Illar Glover, RFD | Troy |
| W. F. Roberts | Troy |
| J. A. Howard | McConnell |
| L. D. Boaz | Harris |
| J. L. Wright | Elbridge |
| P. W. Prather | Woodland Mills |
| Swan Burrus | Woodland Mills |
| E. H. White | Rives |
| C. J. Carter | Colorado Springs, Colo. |
| M. L. Smith | Fulton, Ky. |
| J. B. Sharp | Union City |
| Orville B. Chandler, 965 Laurel Ave., St. Paul, | Minn. |
| C. C. Marshall | Hornbeak |
| John D. Adams | Hornbeak |

### Putman County.

| | |
|---|---|
| R. L. Shipley | Cookville |
| Lex Dyer | Cookville |
| W. A. Howard | Cookville |
| J. E. Sidwell | Cookville |
| L. D. J. Ensor | Cookville |
| J. R. Storie | Cookville |
| J. S. Trapp, RFD 8 | Sparta |
| Samuel Denton | Buffalo Valley |
| R. H. Millis | Baxter |
| S. A. Johnson | Monterey |
| W. C. Officer | Monterey |
| Reid Russell | Monterey |
| J. T. Moore | Algood |
| L. M. Freeman | Granville |
| T. J. Ford | Baxter |
| J. Mac. Wheeler | Bloomington Springs |
| L. S. Love | Silver Point |

### Polk County.

| | |
|---|---|
| C. W. Strauss | Copperhill |
| T. J. Hicks | Copperhill |
| A. W. Lewis | Copperhill |
| W. Y. Gilliam | Copperhill |
| E. M. Akin | Copperhill |
| H. P. Hyde | Copperhill |
| W. W. Kimsey | Ducktown |
| L. E. Kimsey | Ducktown |
| F. M. Kimsey | Ducktown |
| A. J. Guinn | Ducktown |
| F. O. Geisler | Isabella |

### Robertson County.

| | |
|---|---|
| W. B. Dye | Springfield |
| W. W. Porter | Springfield |
| M. L. Bradley | Springfield |
| B. F. Fyke | Springfield |
| R. L. Mathews | Springfield |
| G. R. Jones | Orlinda |
| W. W. Winters | Greenbrier |
| T. L. Johnson | Greenbrier |
| J. R. Connell | Adams |
| B. B. Sory | Cerad Hill |
| J. W. Thomas | Cross Plains |
| J. B. Woodruff | Murfreesboro |
| S. T. Woodruff | Springfield |
| Jno. S. Freeman | Springfield |
| W. F. Fyke | Springfield |

### Roane County.

| | |
|---|---|
| Geo. F. St. John | Harriman |
| W. W. Hill | Harriman |
| E. F. Dodson | Harriman |
| H. M. Carr | Harriman |
| F. A. Neergaard | Harriman |
| T. M. McGill | Harriman |

| | |
|---|---|
| J. C. Wilson | Rockwood |
| Geo. E. Wilson | Rockwood |
| E. S. Phillips | Rockwood |
| J. M. Clack | Rockwood |
| Thos. H. Phillips | Rockwood |
| J. A. Sewell | Rockwood |
| W. S. Clack | Rockwood |
| Wm. Cusick | Rockwood |
| J. J. Waller | Oliver Springs |
| W. E. Gallion | Oakdale |
| J. B. Cross | Wheat |
| John Roberts | Kingston |
| G. P. Zirkle | Kingston |
| A. B. Lutrell | Glen Alice |

### Rhea County.

| | |
|---|---|
| W. F. Thomason | Dayton |
| J. R. Gillespie | Dayton |
| J. M. Clark | Spring City |
| W. P. McDonald | Spring City |
| W. P. Allen | Dayton |

### Rutherford County.

| | |
|---|---|
| C. E. Tubb | Murfreesboro |
| W. T. Robinson | Murfreesboro |
| J. S. Allen | Durfreesforo |
| A. J. Jamison | Murfreesboro |
| J. C. Overall | Murfreesboro |
| B. N. White | Murfreesboro |
| M. B. Murfree | Murfreesboro |
| E. B. Allen | Murfreesboro |
| S. L. Wiles, RFD5 | Murfreesboro |
| J. A. Scott | Murfreesboro |
| V. S. Campbell | Murfreesboro |
| J. W. Cartright, RFD 6 | Murfreesboro |
| G. W. Crossthwait | Murfreesboro |
| T. M. Smoot | Woodbury |
| J. T. Harris | Water Hill |
| M. B. McCrary | Woodbury |
| J. J. Rucker | Overall |
| W. J. Engles | Smyrna |
| D. C. Huff | Christiana |
| J. D. Hall | Readyville |
| J. M. Shipp | Readyville |
| J. F. Adams | Bradyville |
| S. B. Smith | Overall |
| R. C. Garrett | Eagleville |
| J. C. Kelton | Lascassas |
| B. L. Ousley | Christiana |

### *Shelby County.

*City Address for Memphis.

| | |
|---|---|
| Shields Abernathy | Exchange Bldg. |
| G. E. Ankerson | Exchange Bldg. |
| J. C. Ayers | Exchange Bldg. |
| W. T. Black | Exchange Bldg. |
| J. B. Blue | Exchange Bldg. |
| J. L. Boyd | Exchange Bldg. |
| W. T. Braum | Exchange Bldg. |
| Selmer Burkhardt | Exchange Bldg. |
| A. H. Butler | Exchange Bldg. |
| L. H. Chapman | Exchange Bldg. |
| C. M. Chilton | Exchange Bldg. |
| J. C. Clark | Exchange Bldg. |
| W. F. Clary | Exchange Bldg. |
| Casa Collier | Exchange Bldg. |
| S. W. Conley | Exchange Bldg. |
| A. B. DeLoach | Exchange Bldg. |
| E. C. Ellett | Exchange Bldg. |
| S. S. Evans | Exchange Bldg. |
| Robt. Fagin | Exchange Bldg. |
| P. M. Farrington | Exchange Bldg. |
| F. W. Fielder | Exchange Bldg. |
| J. S. Fleming | Exchange Bldg. |
| E. E. Francis | Exchange Bldg. |
| Geo. Gartley | Exchange Bldg. |
| G. H. Glover | Exchange Bldg. |
| Marcus Haase | Exchange Bldg. |
| Max Henning | Exchange Bldg. |
| G. H. Hill | Exchange Bldg. |
| J. F. Hill | Exchange Bldg. |
| J. J. Hobson | Exchange Bldg. |
| F. B. Hoover | Exchange Bldg. |
| J. A. Hughes | Exchange Bldg. |
| D. H. James | Exchange Bldg. |
| J. A. James | Exchange Bldg. |
| E. J. Johnson | Exchange Bldg. |
| Jas. E. Johnson | Exchange Bldg. |
| Frank A. Jones | Exchange Bldg. |
| Elizabeth Kane | Exchange Bldg. |
| Max Kaplan | Exchange Bldg. |
| C. C. King | Exchange Bldg. |
| Louis Leroy | Exchange Bldg. |
| A. C. Lewis | Exchange Bldg. |
| E. J. Lipscomb | Exchange Bldg. |
| Geo. R. Livermore | Exchange Bldg. |
| A. R. McMahon | Exchange Bldg. |
| J. B. McNulty | Exchange Bldg. |
| Battle Malone | Exchange Bldg. |
| F. T. Mitchell | Exchange Bldg. |
| W. H. Pistole | Exchange Bldg. |
| W. E. Ragsdale | Exchange Bldg. |
| C. H. Sanford | Exchange Bldg. |
| L. V. Schmittou | Exchange Bldg. |
| J. J. Shea | Exchange Bldg. |
| W. L. Simpson | Exchange Bldg. |
| W. G. Somerville | Exchange Bldg. |
| M. G. Spingarn | Exchange Bldg. |
| J. H. Smith | Exchange Bldg. |
| F. D. Smythe | Exchange Bldg. |
| F. W. Smythe | Exchange Bldg. |
| J. B. Stanford | Exchange Bldg. |
| W. W. Taylor | Exchange Bldg. |
| E. G. Thompson | Exchange Bldg. |
| B. F. Turner | Exchange Bldg. |
| C. C. Turner | Exchange Bldg. |
| H. K. Turley | Exchange Bldg. |
| J. S. Winter | Exchange Bldg. |
| P. H. Wood | Exchange Bldg. |
| J. P. Owens | Exchange Bldg. |
| J. A. Crisler | Exchange Bldg. |
| T. N. Copedge | Exchange Bldg. |
| C. W. Edwards | Exchange Bldg. |
| W. L. Howard | Exchange Bldg. |
| A. P. Bush, 730 State St. | Bridgeport, Conn. |
| O. P. Walker | Exchange Bldg. |
| O. M. Laten | Exchange Bldg. |
| S. D. Terrell | Exchange Bldg. |
| A. G. Quinn | Exchange Bldg. |
| H. N. Pulliam | Exchange Bldg. |
| M. B. Hendrix | Exchange Bldg. |
| E. C. Mitchell | Exchange Bldg. |
| D. H. Anthony | Exchange Bldg. |
| J. A. Vaughn | Exchange Bldg. |
| Chas. D. Blassingame | Exchange Bldg. |
| Herbert Barbee | Exchange Bldg. |
| R. S. McDavid | Exchange Bldg. |
| J. A. McDonald | Exchange Bldg. |
| T. H. Ingram | Exchange Bldg. |
| R. G. Henderson | Exchange Bldg. |
| M. L. Bearden | Goodwyn Inst. Bldg. |
| W. A. Brewer | Goodwyn Inst. Bldg. |
| V. S. Demarco | Goodwyn Inst. Bldg. |
| Cummings Harris | Goodwyn Inst. Bldg. |
| William Krauss | Goodwyn Inst. Bldg. |
| J. J. McCaughan | Goodwyn Inst. Bldg. |
| W. P. Moore | Goodwyn Inst. Bldg. |
| R. L. Sanders | Goodwyn Inst. Bldg. |
| L. C. Sanders | Goodwyn Inst. Bldg. |
| O. A. Warr | Goodwyn Inst. Bldg. |
| A. H. Meyer | Goodwyn Inst. Bldg. |
| C. P. Houze | Goodwyn Inst. Bldg. |
| J. H. Herring | Goodwyn Inst. Bldg. |
| S. T. Rucker | Goodwyn Inst. Bldg. |
| E. C. Blackburn | Randolph Bldg. |
| S. L. Bocellato | Randolph Bldg. |
| Alfred Moore | Randolph Bldg. |
| J. C. Mobley | Randolph Bldg. |
| C. K. Summers | Randolph Bldg. |
| J. B. Stanley | Randolph Bldg. |
| S. L. Edwards | Randolph Bldg. |

J. C. Adams ---------- Bank of Commerce Bldg.
Lynn Anderson ------ Bank of Commerce Bldg.
W. S. Anderson ------ Bank of Commerce Bldg.
John L. Dies -------- Bank of Commerce Bldg.
I. G. Duncan -------- Bank of Commerce Bldg.
David Galloway ------ Bank of Commerce Bldg.
L. A. Haskell -------- Bank of Commerce Bldg.
E. M. Holder -------- Bank of Commerce Bldg.
H. B. Jacobson ------ Bank of Commerce Bldg.
R. F. Kenton -------- Bank of Commerce Bldg.
Louis Levy ---------- Bank of Commerce Bldg.
O. S. McCown -------- Bank of Commerce Bldg.
W. T. Pride ---------- Bank of Commerce Bldg.
H. G. Rudner -------- Bank of Commerce Bldg.
D. K. Sauls ---------- Bank of Commerce Bldg.
M. Goltman ---------- Bank of Commerce Bldg.
R. E. Semms -------- Bank of Commerce Bdlg.
L. L. Meyer ---------- Bank of Commerce Bldg.
H. P. Conley -------- Bank of Commerce Bldg.
Joe Clifton ---------- Bank of Commerce Bldg.
J. M. Maury ---------- Bank of Commerce Bldg.
R. W. Hooker -------- Bank of Commerce Bldg.
H. F. Minor ---------- Bank of Commerce Bldg.
A. F. Cooper --------- Bank of Commerce Bldg.
Robin Mason --------- Bank of Commerce Bldg.
E. E. Haynes -------- Bank of Commerce Bldg.
J. L. Minor ---------- Bank of Commerce Bldg.
E. D. Watkins -------- Bank of Commerce Bldg.
P. A. Perkins -------- Bank of Commerce Bldg.
Newman Taylor ------ Bank of Commerce Bldg.
W. S. Lawrence ------ Bank of Commerce Bldg.
E. D. Mitchell -------- Bank of Commerce Bldg.
Alma D. Richards ---- Bank of Commerce Bldg.
W. T. Swink ---------- Bank of Commerce Bldg.
Moore Moore -------- Bank of Commerce Bldg.
W. R. Graves -------- Bank of Commerce Bldg.
R. E. Davenport ------ Bank of Commerce Bldg.
J. L. Andrews ------------ Central Bank Bldg.
R. C. Bunting ------------ Central Bank Bldg.
J. J. Cullings ------------ Central Bank Bldg.
Harry Dickson ------------ Central Bank Bldg.
B. W. Fontaine ------------ Central Bank Bldg.
E. C. Ham --------------- Central Bank Bldg.
A. G. Jacobs -------------- Central Bank Bldg.
Gilbert J. Levy ----------- Central Bank Bldg.
J. Morgan --------------- Central Bank Bldg.
Eugene Rosamond -------- Central Bank Bldg.
J. S. Sibley -------------- Central Bank Bldg.
Newton Stern ------------ Central Bank Bldg.
H. G. Watkins ------------ Central Bank Bldg.
A. B. Williams ------------ Central Bank Bldg.
W. L. Williamson ---------- Central Bank Bldg.
J. B. McElroy ------------ Central Bank Bldg.
L. G. McGhee ------------ Central Bank Bldg.
G. H. Savage ------------- Central Bank Bldg.
Robert Mann ------------- Central Bank Bldg.
Frank Graham ----------- Central Benk Bldg.
A. L. Blecker -------------- U&P Bank Bldg.
S. N. Brinson -------------- U & P Bank Bldg.
E. G. Campbell ------------ U & P Bank Bldg.
J. H. Carter --------------- U & P Bank Bldg.
W. A. S. Castles ----------- U & P Bank Bldg.
J. J. Huddleston ----------- U & P Bank Bldg.
J. L. Elks ------------------ U & P Bank Bldg.
D. P. Kineaid -------------- U & P Bank Bldg.
H. S. Wolff ---------------- U & P Bank Bldg.
J. H. Carter --------------- U & P Bank Bldg
W. S. Thorn --------------- U & P Bank Bldg.
Walter Stewart ------------ U & P Bank Bldg
B. F. Hardin --------------- U & P Bank Bldg.
V. D. King ----------------- U & P Bank Bldg.
W. G. Alford ------------------- Mallory Ave.
W. R. Arthur ----------------- Neshoba, Tenn.
J. L. Barton ------------------ 78 S. Main St.
J. L. Beauchamp -------------- 614 N. 7th St.
J. M. Biggs ------------ 1570 E. Moreland St.
W. B. Burns -------------------- Porter Bldg.
C. C. Burnes ------------------- Porter Bldg.
W. C. Campbell ----------- 869 Madison Ave.

Paul D. Elcan ---------------- Denver, Colo.
H. B. Everette -------- Sta. "C" Binghampton
W. H. Gragg ----------------- Binghampton
F. L. Husbands -------------- Hollywood Sta.
L. C. Johnson ------------------ Lucy, Tenn.
W. H. Lovejoy ------------- 511 S. Parkway
E. G. Merriwether ---------- Odd Fellows Bldg.
J. J. Neeley ---------------- Odd Fellows Bldg.
W. L. Rucke ------------- 1752 Vintonn Ave.
W. R. Wallace ---------------958 S. 5th St.
S. F. Weygandt, Robt. Koch Hosp. --- Koch, Mo.
W. E. Rudisill ------------ 1014 Patton Ave.
C. C. Chaffee ------------ Brunswick, Tenn.
C. O. Bailey ------------ Florida & Gage Ave.
Cecil Warde ------------------- Merton Ave.
Murray Tate -------------- 848 Poplar Ave.
H. E. Thomas -- ----------- 222 N. Main St.
Geo. B. Stewart ----------- Old Releigh Rd.
M. A. Schultz ------------ 175 W. Iowa Ave.
J. W. Mason ------------- 606 Chelsea Ave.
J. T. Moss ------------------------ Lee Bldg.
J S .Miller, RFD ---------- Collierville, Tenn.
G. A.Coors, Jr. --------------- 293 S. 3rd St.
J. E. Clark ------------- Forrest Hill, Tenn.
A. G. Hudson ----------------- Raines, Tenn.
J. A. McIntosh ------------ 349 S. Lauderdale
E. B. Herring ---------------- Tutwiler Bldg.
N. F. Raines ----------------- Raines, Tenn.
W. R. Bethea ----------------- Baptist Hosp.
W. K. Batte -------- Trezevant & Lamar Blvd.
E. K. Leake -------------- Collierville, Tenn.
W. A. Watson -------------------- Isola, Miss.
S. B. Wadley ------------- 1026 Forrest Ave.
J. B. Gerino ---------- Box 571, Houston, Tex.
J. R. Drake ------------------ Police Station
W. B. Lain ------------ Memphis General Hosp.
E. C. Duvall ---------- McLemore & Rayburn
W. V. Pruett ---------------- Memphis, Tenn.
E. M. Peete ---------------- 499 Vance Ave.
E. Rutledge -------------- 879 Madison Ave.
J. W. Kirby, RFD 4 ---------- Memphis, Tenn.
S. E. Johnson ---------------- Bartlett, Tenn.
Robert S. Pearce --------------- McCall Bldg.
W. W. Mitchell ------------ 1455 Peabody Ave.
Howard Durley ------------ Whithaven, Tenn.
A. M. Kraull ---------- Marine Hosp. Memphis
F. M. Malone -------------- Capleville, Tenn.
J. W. Cunningham, 701½ Main St. Little Rock,-- ---------------------------------------- Ark.
C. A. Symons --------------- 1544 Edith St.
L. R. Polk --------------- 993 S. Cooper St.
W. A. Carnes ---------------- Randolph Bldg.
Sidney Meeker -------- Bank of Commerce Bldg.
Richmond McKinney -- Bank of Commerce Bldg.
S. E. Parrott ----------------- Cordova, Tenn.
John G. Seay ----------------- Neshoba, Tenn.
G. H. Dowland, Ishpeming Hosp. Ishpeming, Mich.
Geo. P. Jones ------------ 227 McLemore Ave.
J. A. McQuinston ----------- Brunswick, Tenn.
R. D. Henderson ------------ 110 Madison Ave.
J. E. French --------------- 2098 Court Ave.
Louis F. Verdel ---------- Central State Hosp.
Robin Harris ---------------- Exchange Bldg.
C. G. Terrell ------------------ Buntyn, Tenn.
James A. Price, Oakville Memorial Sanatorium, ---------------------------- Oakvlle, Tenn.
J. W. Bodley --------- Bank of Commerce Bldg.
K. M. Buck -------------- Central Bank Blng.
M. W. Searight --------------- Exchange Blng.
T. W. Dailey ------------- U. S. Marine Hosp.
J. J. Durrett ----------------- Memphis, Tenn.
R. B. Flaniken --------------- Kerrville, Tenn.
J. S. Speed -----------------869 Madison Ave.
W. R. Blue --------------- Central Bank Bldg.
P. W. Toombs -----------------319 Dudley Ave.
J. B. Stone --------------------------- Sta "C"
L. G. Miller -------------- Central Bank Bldg.
L. T. Bolton, Box 122 ----------------- Millington
Henry Mann -------------- Central Bank Bldg.

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| C. H. Marshall | Exchange Bldg. |
| E. Feldman | 1084 Thomas Ave. |
| M. B. Seligstein | Central Bank Bldg. |

### Smith County.

| | |
|---|---|
| J. J. Beasley | Pleasant Shade |
| I. H. Beasley | Dixon Springs |
| F. W. Brownfield, Gary Hosp. | Gary, Ind. |
| J. G. Bridges | New Middleton |
| J. H. Chism | Carthage |
| L. D. Cotton | Alexandria |
| W. B. Dalton | Gordonsville |
| C. H. Davis | Lancaster |
| Rhea E. Garrett | Dixon Springs |
| B. J. High | Elmwood |
| R. E. Key | Monoville |
| Jas. C. Mooney | Gordonsville |
| J. B. Neil | McTownlee Bldg., Knoxville |
| A. C. Parker | Brush Creek |
| T. W. Fields | Carthage |
| C. W. Robinson | Defeated |

### Scott County.

| | |
|---|---|
| T. L. Phillips | Oneida |
| E. M. Thompson, | Oneida |
| F. M. Boyatt | Oneida |
| W. S. Cooper | Oneida |
| D. T. Chambers | Norma |
| D. M. Woodward | Winona |
| J. I. Foster | Huntsville |
| W. W. Foust | Robbins |
| Pitney Phillips | Glen Mary |
| L. M. Mullins | Winona |

### Sullivan, Carter and Johnson Counties.

| | |
|---|---|
| W. K. Vance | Bristol |
| Wm. K. Vance, Jr. | Bristol |
| G. M. Peavler | Bristol |
| T. F. Staley | Bristol |
| W. R. Booher | Bristol |
| Jas A. Delaney | Bristol, Va. |
| Edgar Hawkins | Bristol, Va. |
| J. L. Cottrell | Mountain City |
| D. A. Swift | Mountain City |
| J. B. D. Robinson | Mountain City |
| N. D. Roberson | Carter |
| C. W. Fleenor | Holston Valley |
| P. E. Marsh | Kingsport |
| F. Graves | Piney Flats |
| J. C. Hutchinson | Crandall |
| W. W. Vaught | Shoun |
| J. C. Statzer | Blountville |
| E. W. Tipton | Kingsport |
| E. S. King | Bluff City |
| Geo. P. Bingham | Bluff City |
| R. T. Childress, RFD 1 | Kngsport |
| C. C. Hacker | Elizabethton |
| John B. Shoun | Elizabethton |
| Paul S. Williams | Hampton |
| G. E. Campbell | Elizabethton |
| A. J. Edwards | Bristol |
| Arthur Hooks | Bristol |
| H. P. Hyder, St. Elizabeth Hosp., Wash., D. C. | |
| J. L. Campbell, 1400 Virginia Ave. | Bristol |
| J. N. Rasor | Elizabethton |
| H. S. Smythe | Mountain City |
| J. O. Woods | Elizabethton |
| N. S. Peters | Bristol |

### Sumner County.

| | |
|---|---|
| W. T. Allen | Gallatin |
| L. M. Woodson | Gallatin |
| W. H. Wynne | Gallatin |
| J. R. Parker | Gallatin |
| W. N. Lackey | Gallatin |
| C. D. Robbins | Gallatin |
| Homer Reese | Gallatin |
| N. H. McLaurin | Gallatin |
| R. N. Buchanan | Hendersonville |
| J. H. Stephens | Hendersonville |
| T. E. Wright | Bethpage |
| W. Roark | Bethpage |
| J. M. Oliver | Portland |
| C. H. Donoho | Portland |
| J. M. Venters | Portland |
| E. F. Peden | Portland |
| T. P. Carter | Westmoreland |
| W. P. Law | Westmoreland |
| H. Bate | Castalian Springs |
| C. C. Fowler | Saundersville |

### Tipton County.

| | |
|---|---|
| H. W. Sale | Covington |
| J. F. Myers | Covington |
| L. A. Yareborough | Covington |
| G. B. Gillespie | Covington |
| L. Hill | Covington |
| L. J. Lindsay | Covington |
| N. R. Newman | Covington |
| J. F. Fraser | Randolph |
| Holmes Roane | Covington |
| B. V. Dickson | Covington |
| A. G. Bentley | Tipton |
| J. E. Anderson | Mason |
| J. J. Flemming | Atoka |
| N. W. Kelly | Covington |
| W. P. Holloway | Covington |
| B. H. Cooper | Covington |

### Washington County.

| | |
|---|---|
| E. A. Long | Johnson City |
| W. J. Miller | Johnson City |
| W. T. Kennedy | Johnson City |
| Geo. J. Sells | Johnson City |
| Elmore Estes | Johnson City |
| R. D. Hyder | Johnson City |
| C. J. Broyles | Johnson City |
| J. G. Moss | Johnson City |
| E. T. West | Johnson City |
| N. E. Hartsook | Johnson City |
| W. J. Mathews | Johnson City |
| J. W. Cox | Johnson City |
| H. D. Miller | Johnson City |
| Lee K. Gibson | Johnson City |
| H. M. Cass | Johnson City |
| J. P. Randall | Johnson City |
| J. W. Wallace | Johnson City |
| W. H. McCullom | Jonesboro |
| R. W. Dulaney | Jonesboro |
| J. C. Horne | Jonesboro |
| N. P. H. Panhorst | Jonesboro |
| J. H. Jones | Jonesboro |
| J. L. Clark | Jonesboro |
| James T. McFadden, RFD | Jonesboro |
| W. H. Morelock | Limestone |
| J. F. Arnold | Limestone |

### Warren County

| | |
|---|---|
| A. B. Ramsey | McMinnville |
| T. F. Page | McMinnville |
| R. L. Maloney | McMinnville |
| A. J. Trail | McMinnville |
| E. L. Mooneyham | Rock Island |
| Herman Reynolds | Viola |
| S. F. Price | Viola |
| H. L. McGuire | Morrison |

### Weakely County.

| | |
|---|---|
| J. B. Bond | Martin |
| J. M. Stewart | Martin |
| T. B. Wingo | Martin |
| W. A. Briggs | Martin |
| C. M. Sebastin | Martin |
| R. M. Little | Martin |
| H. B. Stephens | Dresden |
| B. S. Mayo | Dresden |
| T. F. Taylor | Dresden |
| J. A. Moore | Sharon |
| C. C. Thomas | Greenfield |
| J. E. Taylor | Dresden |

### White County.

| | |
|---|---|
| W. J. Breeding, RFD 8 | Sparta |
| W. L. Brock, RFD 1 | Sparta |
| E. B. Clark, RFD 5 | Sparta |
| S. E. Gaines | Sparta |
| D. R. Gist | Sparta |
| W. M. Johnson | Sparta |

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|---|---|
| A. F. Richards | Sparta |
| A. A. Bradley, RFD 5 | Cookville |
| Vernon Hutton | Ravencroft |
| E. O. Jenkins | Clifty |
| P. E. Lewis | Doyle |
| B. M. Little | Bon Air |
| C. S. Moss | Eastland |
| J. R. Gott | Murfreesboro |
| E. C. Mason | Clifty |

### Williamson County.

| | |
|---|---|
| Dan German | Franklin |
| Sam White | Franklin |
| Geo. C. Paschall | Arrington |
| W. W. Graham | College Grove |
| J. B. Core, RFD 1 | Allisona |
| B. T. Nolen | Franklin |
| J. O. Walter | Franklin |

### Wilson County.

| | |
|---|---|
| Walter S. Dotson | Lebanon |
| J. S. Campbell | Lebanon |
| J. R. Bone | Lebanon |
| B. S. Rhea | Lebanon |
| L. L. Tilley | Lebanon |
| J. R. Puryear | Lebanon |
| J. J. MrFarland | Lebanon |
| C. V. Young | Lebanon |
| M. H. Wells | Watertown |
| R. Q. Lillard | Lebanon |
| F. E. Shannon | Watertown |
| J. R. Doak | Watertown |
| J. L. Davis | Watertown |
| W. F. Young | Stateville |
| W. D. Martin | Gladeville |
| J. M. Weaver | Mt. Juliet |
| G. W. Crise | Lebanon |
| A. O. Eskew, (deceased) | Lebanon |
| S. W. McFarland, (deceased) | Lebanon |

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## PASSING AWAY—FADING OUT.*

By W. K. Sheddan, M. D., Columbia.

Mr. President and Gentlemen of the Tennessee State Medical Association: When I received the request from our Secretary to prepare a paper for this meeting, I wondered what he thought I could write about that would instruct, interest, entertain or amuse this body. When I began to look over the field for a subject, I was as a shipwrecked sailor, a mariner without a compass.

Our Secretary knows that I cannot entertain you with a moving picture display, showing you how I have done fifty operations by unique methods for removal of the Caeserian ganglion; nor a hundred operations done in the stomach by some of my original procedures; nor five hundred gall bladder cases, all done by my method of doing a cholecystectomy; nor one thousand operations of appendectomy done by my modification of Dr. B's method of disposing of the stump; nor one thousand tonsillectomies done with my original devices and methods; nor can I show how I have done, by my own inimitable methods and peculiar devices, fifty cases of bone or tendon transplant or nerve suturing; neither can I show you the graphic picture of a large number of thyroidectomies, the operative work all done according to some unusually simple original plan of my own.

The Secretary cannot expect me to instruct and edify this body with a report of my pathological findings in a thousand autopsies done on brain and cord lesions, or heart and vascular changes, or kidney and liver pathology. Nor can he expect me to startle you with a report of the findings in my work of an original character in the anatomical, physiological, biological or chemical laboratories.

Our Secretary knows that I cannot amuse you by reporting the discovery of some hitherto unknown and untamed bacillus or trepanome, which I have found by my original methods of trapping and taming; nor astonish you with a moving picture exhibit of the delicate and difficult work of diagnosing and treating venereal diseases. He certainly does not expect me to entertain you with a report of my original work in the field of psychoneurology nor to astonish you with anything original I may have done in the domain of endocrinology. For our Secretary knows that since he, as well as a majority of the membership of this organization of the present time, were in their professional swaddling clothes, I have confined my work to that line, now the rarest of all the specialities—a general practitioner, a country physician, a family doctor, a class rapidly passing away and whose ethieal conduct and professional virtues are surely fading out of professional life.

It is to revive the memory, plead for the virtues and ask charity for the mistakes and errors of this class of medical men of the past that I was induced to accept our Secretary's request to prepare a paper for this meeting, and by the subject selected to ask of you, the advanced, elevated, scientific specialists that have become a majority of the medical profession of this age to take a retrospective view of this organization as well as of the profession in the state and the country at large. And let's see if much has not passed away that was of incalculable value, and much faded out that was noble in professional life and character.

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*Read at Annual Meeting Tennessee State Medical Association at Nashville, April, 1921.

Thirty-four years ago when I attended my first meeting, and became a member of this organization, although at that time I was comparatively a youngster, yet I felt at home, for the reason that its membership was almost entirely made of that class of the profession now almost a memory and rapidly passing away—the general practitioner, the country physician, the family doctor.

One of the impelling reasons that prompts me to prepare and present this paper to this body is to pay tribute to the memory of this element of our profession. The professional life and conduct of the men of that day was an exemplification of the highest ideals of the grandest calling to which mortal man could aspire. And the most respected, honored and loved of the membership of this organization at that time was this class of men—the general practitioner, the family doctor—represented in this society at that time by the erudite Bowling of Nashville, the venerable Lipscomb of Shelbyville, the scholarly Lenoir of Lenoir City, and the talented Wright of Clarksville, and Cliffe of Franklin, the Ramseys, the Boyds and Deaderick of Knoxville, the Harrisons and Blairs of Loudon, Powell of Danceyville, Thornton, Sims, Saunders, Maury, the Rogers and the Mitchells, and Erskin of Memphis, Beaumont, Wilson, Marable and Runyon of Clarksville, Abernathy and Wilson of Pulaski, Fowler and Harlan of Columbia, the Atchisons, the Menees, the Maddins, the Eves, the Briggs, the Stephens, Cain, Buist, Roberts, Nichol, Glenn and Douglass of Nashville, Sims, Cobleigh, Baxter, Drake, Nelson and Smith of Chattanooga, Murfree and Byron of Murfreesboro, Nowlin, Evans and Moody of Shelbyville and Cornersville, Happell of Trenton, Cook, Walker and Moss of Dyersburg, Dulaney and Peavler of Bristol, Edmonds of Paris, Lovell, Ridings and Scott of Dickson, Cates and Blankenship of Maryville, Bozeman of Cleveland, Hope of Sweetwater, Crook and Jones of Jackson, and many others which time will not permit me to name. But all of these were the highest type of family doctors and professional men.

The active patriarchs of this body at that time were Bowling, Lipscomb, Lenoir and Wright, a great quartet of grand old gentlemen and good family doctors. It was my privilege to know those noble old patriarchs personally, and my good fortune to be a private office pupil of that dear old family doctor, B. B. Lenoir, for three years. He was more than a teacher to me—he was a professional father. Many of the most valuable lessons of my professional life, both of precept and example came from his tutelage during the three years of our association. Well do I remember the lessons he gave me in anatomy, Wilson and Gray being my text books; how he would take the various bones of the human skeleton and demonstrate to me their various anatomical features, such as shaft and extremities, tubercles and tuberosities, grooves, notches, and foramina, their plates and surfaces, and the many characteristics of the long, short, flat and irregular bones, and after come into his office and begin a quiz covering everything I had read and he had demonstrated for a period of weeks, and later of months, until we had covered the field of anatomy, general, regional, topographical and surgical.

Well do I recall, when after ten or twelve months of continuous work in the study of anatomy, he started me in the study of physiology, with Dunglinson and Dutton as my textbooks, and how he carried me systematically through this branch from proximate principles to the physiology of the special senses, after comparing the teachings of the two authors whose text books I was using. Later chemistry was taken up and studied carefully and systematically, with Atfield and Fowne as text books. Materia medica, pharmacology and therapeutics with Renger, Wood and Stille as text books, claimed a liberal share of my three years of office study. Practice of medicine and general pathology I laboriously delved into with such text books as "Principles and Practice of Physic" by Thos. Watson "Practice of Medicine" by George B. Wood, and "Differential Diagnosis" by J. M. DaCosta, Trousseau's "Clinical Medicine" and Austin Flint's work on "Practice of Medicine."

Obstetrics, with the works of Hodge, Parvin Meigs, Cazeaut, and Ramsbotham as text books, was systematically and carefully studied by me and all details pointed out and explained by this careful conscientious preceptor. Our lessons in gynecology came from such text books as the works of Scanzoni, Barnes, Tyler Smith, Graily Hewitt, Baker, Brown and Sims.

Surgery we studied from the text books written by such great masters as Gross, Erickson, Ashurst and Hamilton, whose writings covered the entire domain of surgery if that day. Venereal diseases we studied with Bumstead and Taylor as our textbook, and in diseases of the eye we had as our guide the works of Scalberg, Wells. The many articles appearing on various subjects in such medical periodicals as the "American Journal of Medical Sciences," at that time a quarterly, the "Medical News," the "Richmond and Louisville Medical Journal," and the "London Lancet" were all carefully read and discussed for my benefit.

After some months of careful training and study I was taught to compound and dispense my preceptor's prescriptions, whether pills, powders or plasters. I was also taught to make the tinctures, syrups, ointments and cerates, and many other arts of like character that the old family doctors of that day practiced. They did not have the advantage of the modern pharmacy and pharmaceutical manufacturers, with their "detail men" to provide ready proprietary prescription and product, without which aid most of our modern ultra-scientific practitioners would be helpless, if we are to judge by the files of drug stores of today.

I often accompanied the old family doctor on his rounds of work, watched him in his careful, painstaking examinations, heard him counsel and comfort his patients, heard him console the distracted, sorrow stricken family, encourage the fond parents, sympathize with the distressed husband, quiet the fears of the grief-stricken wife, and carry the message of hope to the frantic children. These old family doctors were the trusted friends and confidential advisers of their clientele in all matters, whether social, domestic, financial or political. They were towers of strength in their communities, loved, honored and almost idolized by their patrons and worshiped by their pupils. The medical student of that generation saw these good old family doctors look after and care for the pregnant women, deliver them, and care for them during their puerperium, care for the babies in their infancy, look after the ills of their childhood; reduce and care for the fractures and dislocations of their youthful days. They would ligate some severed artery, occasionally trephine a fractured skull, remove a hopelessly damaged eye, relieve a strangulated hernia, amputate a hopelessly diseased or damaged limb, remove a suspicious tumor, vaccinate against smallpox, treated them with their typhoids, pneumonias and dysenteries, cure their anemias and their itch, would fight their worms and pull their aching teeth.

After three years of such tutelage in daily and almost hourly contact with such scientific practical family doctors of that period, we could take our certificates of such tutelage and be eligible to enter any of the medical colleges of this country at that time, and, I am sure, were often much more capable than the third year student of today in the practical branches of the profession. Here in the school we again came into contact with this same class of men as teachers, as the professional staffs of the schools at that time were of the same practical family doctor type. After spending two terms of four months each, we could take the examinations for the degree of M. D., at a cost of not exceeding three to six hundred dollars, and then go out into the practical work as an assistant or junior partner of some one of these family doctors to finish the practical training begun during our student days. Such relations at that time were the rule and often existed until the retirement from work or the death of the senior ended them.

But with the endowment of a few of the large Eastern Medical Schools, and the increase in the number of terms, and the lengthening of the terms, and with increased college fees, this old order of practical, conscientious medical education is passing away and the practical ideals of that era are fading out.

With the advent of big endowments, and the lengthening of terms and increase of years and prohibitive costs, with whole-time professors and the various laboratories with their many complicated mechanical devices, the profession of medicine has largely passed into the keeping of the idle rich, who feel not the incentive of necessity of work. As a result, the superscientific specialist, with utterly impracticable ideas of his work, and often with a very exaggerated conception of his ability and importance, at present, I fear, well-nigh constitutes a majority of the profession.

The system of medical education that was in effect when I came into the profession, and had existed for a century before, had given the American profession its Physick, its Rush, its McDowell, its Baynham, its Mott, its Pancoast, its Morton, its Long, its Stone, its Warrens, its Dudley, its Sims, its Dalton, its Flints, father and son, its Gross, its Pepper, its Buchanans, father and son, its Bowling, its Eve, its Janeway and numerous others, a galaxy of men who made American medicine famous. Some of these were renowned most as surgeons, but practically all of them were general practitioners and family doctors. Many of these would be barred from the profession under the present system of medical education, some for the lack of the present day literary requirements and others for failing in their financial attainment.

Has any of the modern highly endowed superscientific medical schools given the American profession a McDowell, a Sims, a Long, a Morton, a John C. Dalton, an Austin Flint, a William H. Welch, or an Edward G. Janeway?

The genius and indomitable will of McDowell and Sims, both general practitioners, both Southern country family doctors, gave to the profession the means of procedures which have done more to lengthen the span of woman's life, to ameliorate her suffering and to palliate her distress than all else given to the world since their time. John C. Dalton, breaking away from the dogmas of traditional and irrational teachings of his day, by his original work and profound thinking and reasoning, became the father of medical, scientific and practical physiology, based on his own original and rational work. Later the great Austin Flint, Jr., another great American thinker and a pupil of Dalton's coming up under the system of medical education of that day, so nearly completed the work of his teacher by his own research that there has been but little added to the sum total of positive knowledge of physiology since. Yet a great deal of speculation in this field has been indulged in since by many of the ultrascientific pedants of this modern advanced era of medical education; but how little has been added to our store of knowledge of true physiological science since the work of Austin Flint!

The genius of Crawford Long, another Southern country doctor, gave the world the one greatest boon for the relief of human pain, the use of which has made practical many procedures that without its beneficial aid would be impossible. Yet, after many years of its use in millions of cases, ether today still stands at the head of the list as an anaesthetic, notwithstanding the agents and devices introduced and exploited by the many ultra-scientific specialists of modern days to take the throne of anaesthesia away from it.

In the field of general medicine who of the modern advanced class in this domain of medicine, with all their modern mechanical devices, has added to the sum total of our knowledge in practical every-day and every-where work anything like what such great clinicians as Nathan S. Davis, the elder Flint, J. M. DaCosta, George B. Wood, Wm. Pepper, Alfred M. Loomis, Alonzo Clark, Francis Delafield and Edward G. Janeway gave us in the way of solid practical ideas in diagnosis and intelligent treatment? Their clean cut clear description of cases as they saw them at the bedside come from studying each case as an individual and acquainting themselves with every part of the patient's family history, and going into every detail of the patient's personal history, both past and present, and carefully analyzing every clinical feature of each individual case, and reasoning from cause to effect and effect to cause, until they reached a well founded diagnosis based on the departure from the physioliogical conditions. By the same process of deductive reasoning they formed a correct idea of the pathology present in each individual patient. Then knowing full well the action expected of the remedial agents of that time, both physioligical and therapeutic, they directed, in accordance with such findings, a line of treatment and management for the relief and cure of their suffering patients, seldom waiting for any of the findings from their meagerly equipped laboratories. To these men patients were patients, and not simply cases as is the case with modern scientific hospital groups. The prime motive of the medical man of forty years ago was to relieve suffering and to restore to health his patient as quickly as possible, and, as a result, the osteopath, the chiropractor and the Christian Scientist were unheard of and the "Irregulars" of that time, the homeopath and the eclectic, had a very limited following.

The practical family doctor of some decades back, with his trained intelligent vision, made better mental pictures of the pathology in the cases under his care, when he knew the family and personal history of the patient, than can often be done in the laboratories at this day, when mechanical appliances often are substituted for clinical brain work. Machines can and may aid materially in some phases of our work, but I fear in by far too many instances the machines dominate the individual, instead of the individual brains directing the machine. The many mechanical devices in use by the profession at the present time seem to me as an evidence that careful bedside observation is passing away and rational thinking and deductive reasoning fading out.

With the passing away of the general practitioner and the fading out of the family doctor, and with the hue and cry of the managements of the medical colleges, and with specialists dominating medical organization has come the asking for legislation, ostensibly put to elevate the standard of the profession, always accompanied with the plea that it is necessary for the protection of the poor, ignorant general public that such legislative enactment was necessary. That same general public had never asked for such legislation; it was not afraid of this octopus of medical ignorance with which medical schools and organizations were trying to frighten it. The high esteem, the loyal devotion and unlimited confidence the general public formerly had for and gave the old family doctor is rapidly fading out and, instead, distrust of the sincerity and honesty of purpose is surely creeping in.

The general public cannot see and fails to understand how a system of medical legislation and education, all done for its peculiar benefit and protection, that banishes the country doctor from his rural environs and practically annihilates the general practitioners, that compels the residents of many such rural sections all over this country to have to secure medical service from the cities and towns at costs that are often a burden and sometimes a hardship on such such individuals is such a great blessing to them. They utterly fail to see where the many benefits come in for their protection.

Under the old order of things if some member of these rural families was dangerously sick or severely injured the family doctor of the neighborhood would send over to the next community some four or five miles away and have Dr. Jones from there to see his patient in consultation, when a diagnosis and management was agreed upon and a prognosis given and the family was satisfied, the community pleased, a reasonable fee charged, and the bill promptly paid, and the profession was honored, loved and respected.

In the era of the country doctor, if some member of some poor, indigent family was taken ill, although it might be at midnight's hour, these old heroes of the sticks would respond to the call of suffering and go forth on their mission of mercy. It might be to attend a woman, a wife and mother, the victim of a placenta previa; by his rare good judgment and fearless confidence he would cope successfully with this horrifying situation and thus save the life of a woman and sometimes a child. I have had this experience four times in my life, and saved four women and two children. Or perhaps it was a case of membranous croup, a child dying of asphyxia; with no instruments except a little pocket case, with a bistoury, a scalpel, a hemostat, and dissecting forceps—no tracheal tube, no assistant, no light except the little brass kitchen lamp. Yet a tracheotomy must be done or a life lost. So for an assistant some kind neighbor would be gotten to securely hold the child, a trachea quickly opened and two bent wire hair pins would be used as retractors to keep the tracheal wound open, with another life saved, as I have done once in my own experience. In these classes of cases there is no time to send twenty miles to town or city for some superscientific specialist to come. And if he were there under such environment, he would in most cases be as helpless as a newborn babe, as he would have no laboratory to make a blood count or to examine a swab from the throat, no trained anesthetist or assistant, no skilled nurse, no sterile operating room made brilliant with a cluster of electric lights. Yet these are some of the conditions that "Old Pills" of the sticks met and contended with and often with saving of human life. Without hope or expectation of pecuniary reward, his compensation was a consciousness of a work well done, and a life saved. The general public does not see how it has been benefitted or its interest protected by the legal enactments that have brought about the extinction of this class of their medical ideals.

Unless medical organizations and medical schools make some concessions to the needs and demands of this rural public, this same public will rise up in its righteous wrath at what they regard as a great public wrong and injustice and through their representatives in legislative bodies will wipe out of existence every vestige of statutes enacted at the instance of these medical organizations. The public is beginning rapidly to look upon such laws as the work of a medical octopus, of a professional trust, reaching its mercenary tentacles out to rob them of their money and their rights and trying to hide its true motive by polluting the water of public sentiment with the inky excretion of its body by saying it is all done for the protection of the poor deluded and ignorant public. As a proof of this proposition see the number and character of the bills introduced in our recent legislature and take heed of the rumblings along this line being agitated in other parts of our country by other organized classes of this general public for such things as compulsory health insurance and other vicious fads aimed at the medical profession. Already nagging restrictions are being forced on the honorable element of the profession, when some little ignorant parvenu from some governmental bureau tells us what we shall write our prescriptions with, whether an ordinary pencil or an indelible pencil or a pen and ink; and also gives us the privilege of prescribing a certain official amount of certain classes of therapeutic agents dictated by him or his chief, who is as ignorant of the action or dosage of such remedies as a heathen Chinee is of a Christian Sunday School.

So we see public respect for the profession is rapidly passing away and as surely fading out. No such things happened in the old days, and no such things were thought of until the profession went fishing in the polluted waters of the slough of political legislation and, by so doing, besmirched its once well night spotless mantle of professional honor, as was always predicted it would do when it succeeded in such efforts by that grand old medical seer and professional prophet, the late lamented W. K. Bowling. Not a single statute was ever placed in the legislative records of Tennessee during his entire lifetime, although it was often attempted. This great old medical patriarch was a representative type of the profession of that time in the past when these old soldiers of medicine stayed by their patrons three hundred and sixty-five days in the year and twenty-four hours in the day, if necessary, in the discharge of their professional obligations as they saw them. Their vacations came when the grim reaper called them to their final rest or when physical disability laid them on the shelf of retirement, when they wrapped around them their mantle of obligations met and duty discharged; while the modern superscientific advanced practitioners of the present must spend the hot months of the year in the mountains or on the great lakes and the cold months in the tropics or semitropics to recuperate from the arduous labor of eight or ten hours a day for the time they are engaged in the work of their profession. If pestilential epidemics came into their communities these old heroes stayed with their people, combatting to the best of their ability the horrors of such occasions, and never took a rest or needed a vacation nor had an engagement to go hunting or fishing until the pestilential monster had been vanquished, all the while fighting him to the last ditch for every victim he claimed.

The public is seeing with regret and amazement the passing away of its most trusted friend, the general practitioner. Many rural communities are in the slough of despond as they see the fading out of their old friend and favorite, the old family doctor. The public is fast coming to the conclusion that it is not the object of medical organizations and medical schools to protect its life and health by legislative enactments nor the object of such organizations to give them better service in a medical way, but that their prime objects are sinister and their highest aims are mercenary.

I am truly glad to see the awakening of some of the present day men prominent in professional life as they can call attention to the present conditions; such men, notably, as Sir James McKenzie, of London, Dr. Beverly Robinson and John P. Davis, of New York, and especially glad I am to see Dr. Frank Billings, of Chicago, waking up to the situation as it exists.

The following comment on the utterances of Sir James McKenzie condemning the tendency toward unlimited dependence upon laboratories and pleading for the reestablishment of the general practitioner, the family physician, in that high place which was once his by right ot accomplishment appeared recently in the Journal of the American Medical Association:

"Sir James Mackenzie's strictures on the workers in the laboratory and the wards of the hospital are provincal and largely undeserved, but one must in the main agree with him in his encomium of the general practitioner. Without these years of general training, the specialist fails to understand the problems that vex the family physician. He lacks breadth of vision; he sees only tonsil, appendix, heart murmur, achylia or displaced uterus, and sees them unduly magnified; he is using the oil immersion lens before knowing the relation of parts that would be shown by a preliminary study with the lens of lower power. Sometimes, conscious of his limitations, yet desirous of being thorough and of escaping the charge of superficiality, he searches for causes and relations other than those directly associated with his own specialty; he strives to be broad visioned and up with the times. But the picture that he sees lacks background, perspective, light and shade; the figures in it are to him isolated and unrelated to each other; and without experience, his interpretations are strained, artificial and illogical. Without due proof, disease may be referred to patholigic conditions not casually related. In this way arise the fad of medicine and surgery, the needless sacrifice of teeth and tonsils, the operative correction of supposedly serious, yet really trivial architectural defects in the pelvis, the whims about diet that are mistakenly regarded as the embodiment of physiologic principles, the routine use of remedial agents, be they drugs, vaccines or water cures, that are prescribed not only unscientifically, but at times not innocuously.

"That this type of specialist is far from ideal is clear. That—to apply our test of the greatest good to the patient—he fails to render a maximum of efficient service and is thus found wanting is also plain. What is needed is the analytic mind, the sane judgment of the wise man of experience. Knowledge comes, but wisdom lingers."

Hear what Dr. Frank Billings, a great city physician and a very prominent figure in the American Medical Association, had to say at a recent conference on Medical Education:

"On the practitioner of medicine himself all reforms must be built if we are to make any headway in meeting the confusion and dissatisfaction that prevails in our own country. When I say practitioner, I mean the family physician, the one who made significant investigations in earlier days. He has not disappeared entirely. Occasonally one finds him in the country, rarely in the city. The training of the family physician in the old days was not equal to what it is today, yet he was a resourceful man. He met every emergency. He was the adviser of the family in all conditions relating to health, morals, and to the education of the children in the family. He was a good therapeutist and depended on the use of a few simple drugs. Such men are born. The difficulties arising today are due primarily to specialism and to our medical colleges having gone wrong. The curriculum of the undergraduate medical school should be modified in order that we may again educate and have these resourceful men. When we can have such men, who are not looking for large fees in surgery, or in any specialty, who will be attracted to other places than the large cities, it will be much better for the community.

"Today our urban population is bigger than the country population. Everyone is attracted to a city, including physicians. The competition and difficulties of living in a city are great. To meet the conditions of modern medicine, the country practitioner should be attracted to remain in a rural region, but not only should he have the facilities which he may need in modern practice, but social conditions should be made better. Any well qualified practitioner of medicine can deal with 75 per cent of his patients without any other means of practice than his brain, his special senses, and a few simple instruments, which are always at hand. The people themselves should pay for the facilities of hospitals and other facilities for their own care. Therefore, any measure for the improvement of health, including treatment, must be carried on in the community and by the community itself, and not outside. We shall not succeed in anything unless it is for the public good, and what is for the public good will be for our good, for we are a part of the public."

In the language of America's greatest character, "You can fool some of the people all of the time, and all of the people some of the time, but you cannot fool all the people all the time."

## CATARACT OPERATIONS.*

By W. W. Potter, M. D.,
Knoxville.

You will notice the title of my paper, gentlemen, is "Cataract Operations." I am very sorry I can not bring to you a description of the cataract operation, or the ideal operation for the removal of the cataractous lens—but unfortunately we are still waiting for, and, of course, hoping that some one will very soon give us a technique which will be adopted universally, and which will more nearly approach the ideal. But until we have such a technique we are compelled to use what we have, and it behooves us to bear in mind that the more skillful we become, the fewer complications we will have, and the greater assurance of giving the patient good vision.

After all, the object of these operations is to give the patient the very best vision possible, and to do this each surgeon should use the technique with which he is most familiar, and do the operation which gives the best results in his hands. It is doubtful, however, if any of you have found it expedient or wise to employ any particular operation in every case. It matters not which operation is done, we have our good and bad results.

I am constrained to believe, in view of the fact that there is no such thing as an ideal cataract operation, that the combined, or extraction with iridectomy, is the one thing that is, and should be done by the average operator in the majority of his cases. Whether a preliminary iridectomy should be done, or not, is left to the discretion of the surgeon in each individual case.

In this connection I wish to acquaint you with the replies received from a number of our leading ophthalmic surgeons throughout the country in answer to a question relative to the percentage of their cataract cases in which preliminary iridectomy was done.

Dr. Geo. E. DeSchweintz says: "I am accustomed to perform a preliminary iridectomy when serious complications are apprehended, when for any reason an extraction in one eye has terminated unfavorably, and when the cataract is unripe, and I intended to extract it without waiting for maturity. I would also perform this operation if a cataract had formed in an eye which I knew had chronic glaucoma. In other circumstances I do not perform this operation."

Dr. Harry S. Gradle, Chicago, says: "I do a preliminary in any case in which I anticipate trouble, and I am doing it more and more all the time. For the past year I have done a preliminary in nearly fifty per cent of the cases. (estimated roughly.)"

Dr. G. C. Savage, Nashville, says—"I do not do preliminary iridectomy on cataract cases. A preliminary capsulotomy six hours before extraction is better."

Dr. E. C. Ellett, Memphis, says—"I rarely do a preliminary iridectomy. The few times I have used it have not impressed me with its advantages, as weighed against the disadvantages of subjecting the eye to two operations."

Dr. Nelson M. Black, Milwaukee, says—"Only in exceptional cases is preliminary iridectomy attempted, such as slowly forming cataracts in which the opacities may possibly be hastened by massage of the anterior capsule, and in cases where one eye has been lost from previous attempt at extraction, especially in eyes with increased inter-ocular tension.''

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*Read before Section on Ophthalmology and Otolaryngology of Tennessee State Medical Association at Annual Meeting at Nashville, April, 1921.

Dr. Walter R. Parker, Detroit, says—''I do a preliminary iridectomy in only a comparatively small percentage of cataract cases. The indications being, roughly speaking, first, when both lens are involved, and the patient's vision is markedly improved by dilating the pupil; second, in cases where I suspect fluid vitreous and occasionally in cases of a nervous patient in which general anaesthetic is contra-indicated. A preliminary iridectomy undoubtedly simplifies extraction of the lens, but in uncomplicated cases I have felt that the advantages gained from the combined extraction were not well enough established to warrant putting the patient through two operative procedures.''

Dr. Wm. Zentmayer, Philadelphia, says—''I am a firm believer in this proceeding, and would like if it were possible to do it more frequently than circumstances will permit. I do a preliminary iridectomy when the cataract is bilateral, and one eye more advanced. I do it in private patients living in, or near the city, with mature cataracts. I do it in all cases where the patient has but one eye.'' He also mentioned some advantages and disadvantagees of the operation.

Dr. Alexander Duane, New York, says—''It would not be my practice to do a preliminary iridectomy in cataract. I think such an operation should be reserved for exceptional cases.''

Dr. Wm. T. Davis, Washington, says—''In those cases of senile cataract where rapid maturation is desirable, a preliminary iridectomy is done; where, for instance, it is considered necessary to do an extraction in one eye before this lens is ''ripe'' in order to conserve useful vision for the patient. I have, in other cases, believed two operations unnecessary.

Dr. John Green, Jr., St. Louis, says—''I perform a preliminary iridectomy in every case where the patient has only a single eye, in cataracts complicating high myopia, and in any other case where the patient desires the safest operation, and is not averse to having two operatons performed, and is willing to devote the necessary time. I sometimes do a preliminary iridectomy in immature cataracts, at the same time gently massaging the anterior capsule in the hope of ripening the cataract.''

Of course this queston is like many others in that we differ in opinion as to the efficacy of, or wisdom, in pursuing any given technique.

Personally, I am not convinced that a preliminary iridectomy is necessary, or even in the majority of cases. One operation is a nerve racking experience for the average individual and two is doubly so, to say nothing of the double danger of complications and the added expense incident to the case. Nevertheless, I believe as some of the gentlemen whose opinion I have read you, that under certain circumstances, this operation may be done to advantage. I have had two cases recently that are good examples of what may happen following a preliminary iridectomy. The first was a man 85 years of age, who had complications following which necessitated the removal of his eye. The iridectomy was done by a man of large experience in a neighboring city, the enucleation was done by me. The second was a man 57 years of age, who was operated on by a former member of this society, who died shortly afterward, and the case came into my hands. Upon examination, I found a subluxated lens. When this occurred, or what caused this subluxation, or dislocation, I am unable to say, but the fact remains that he did have this condition, and that this is one of the complications that may arise following a preliminary iridectomy. Happily in this case we were able to fish this lens from the vitreous, (which, as you know, is quite a difficult procedure), and gave the man a serviceable eye, in spite of the loss of a large quantity of vitreous, which was fluid in character. The eye-ball collapsed, and I felt that I owed my success in this case to a normal saline solution which was freely used.

There are other questions relative to cataract operations which are constantly before us, as for instance, when to operate? Is it wise to advise the patient to wait until the cataract is mature, or until he or she is no longer able to see objects, or walk around unassisted before reporting for operation? It has been the custom of many ophthalmic surgeons to give their patients just such advice. Whether or not an injustice has been done, these patents is a question each of you will settle in your own mind. It is my experience that most of these patients will postpone an operation as long as they can see to move around, and a great many will only consent to operation after being in darkness for months, or even years, and after having tried all the "well-known and highly recommended" remedies for the absorption of the cataract, and the restoration of vision. On the other hand, there are patients who demand an early operation and will not be satisfied to wait until the cataract is mature, especially since it has been noised abroad that certain operators are removing them in their incipiency and that it is useless to wait until blindness occurs. There is a great deal to be said in favor of the early operation in some cases, but to make a practice of removing all so-called incipient cataracts is not wise or justifiable. You very well know that all opacities in the lens are not necessarily beginning cataracts and often I think it unwise to burden certain individuals with the knowledge of their existence.

However, as before intimated, there are a number of reasons for advocating an early operation, and in my judgment the most important one is that by doing the early operation a great many eyes will be saved from glaucoma that otherwise would surely be lost. It is not pleasant to think of the great host of hopelessly blind who are such as a result of having been advised to "wait until the cataract is ripe."

As to the technique or operation best suited for removing the immature cataract, you will have to decide for yourselves. Some operators would have us believe that the Smith-Indian-Vail-Fisher technique is the ideal one in these cases, but after having the privilege of observing this operation a number of times I failed to be convinced that it was the technique more approaching the ideal. Doubtless some of you have seen an article by Dr. D. T. Vail, of Cincinnati, which was read before the eye, ear, nose and throat secton of the Ohio State Society, in which he makes some statements relative to the advantage of the so-called "newer technique" over the old, or combined, capsulotomy method of operation, which I believe very few of you would subscribe to. In Dr. Vail's opinion the old, or capsulotomy operation is only applicable to ripe or nearly ripe cataracts. It is also his opinion that "the capsule on a live lens adheres to the cortex, and when left in the eye frequently causes dense after-cataracts, which is far worse than the original cataract."

It has been known for a number of years, and is without doubt a well established fact, that the unripe or even transparent lens can be removed quite successfully by the old method, and as to an after-cataract being far worse than the original cataract, I, personally, am not willing to admit.

In the study of the different methods of removing cataracts, I was very much impressed with Vard-Hulen's idea of intra-capsular extraction, and believe it to be a long step toward the ideal. I have not had the privilege of seeing this operation, but I believe he has the right idea.

As previously stated, I have no new technique to demonstrate, or describe to you, and wll not take up your time further in generalities. However, I wish, in concluding, to remind you of the various complications that may arise in cataract work, regardless of the operator, or the operation attemped; and to call your attention to the absolute necessity of observing every detail of the technique in every case, if the best results are to be obtained.

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## DISCUSSION.

Dr. S. T. Hubbard, Chattanooga: Perhaps one of the most important points in cataract operation today is—Shall we wait for maturity of the lens?

Dr. Weeks has proved rather conclusively, with his operative surgery course on the cadavers at Bellevue College, that the lens could be removed very readily when it was still very immature; and for a long time, I personally know, Dr. Weeks has not been waiting for maturity before he removed the cataract. While it is not advisable to remove cataracts too early, perhaps neither is it advisable to wait too long, or vice versa. The standard of some operators is the visual acuity. No surgeon is justified in operating upon an eye when he may lose that eye from infection—or as the result of the operation—until that eye is in a condition where it is no longer useful to the patient; in other words, when the vision has decreased to such an extent that the eye is no longer useful to the patient, perhaps one would be justified in operating, and in not waiting for full maturity of the lens.

Dr. G. C. Savage, Nashville: Mr. Chairman and Gentlemen: Since this meeting assembled, I have learned that some confrere in Spain has developed a device by means of which the suction operation, first introduced by Hulen in this country, can be easily done. The apparatus is said to be not clumsy. Now the objection to the Hulen device was that it was so terribly clumsy that it could hardly be used at all. Now that operation consists, of course, in a cup being applied to the anterior capsule of the lens, and when the suction produced fixes it, then the rotation on its anterior-posterior axis tears loose the ligamentous attachment. Then the same suction will lift the lens out. I am anxious to see the device which has been made by this confrere in Spain.

Up to the time that Homer Smith introduced his method of operating for cataract, immature cataract especially, I had done some forty odd operations with my detachment instrument, which I conceive to be far superior to the Col. Smith or Indian operation. My detachment instrument consists of a double curve—a horizontal and a vertical curve. After placing the instrument in the eye, the tilting on its horizontal axis tears loose the ligaments above and below; then tilting it on the vertical axis tears loose the ligaments from side to side. Then the cataract is delivered in the usual way. That operation was not free from danger. One would often have an escape of vitreous, but it was far superior, in my judgment, to the operation of Colonel Smith of India.

But when I had listened to Homer Smith describe his procedure for extracting immature cataract and when I had talked to him personally about it, it occurred to me to be so safe as compared with my operation, that I gave up my operation. I am not going to give up the Homer Smith operation until I find that this man in Spain has given us an easily managed suction apparatus for extracting the lens in its capsule.

Now of course Homer Smith's operation is simple, after dilating the pupil, a large corneal preliminary capsulotomy. He did it several hours before the extraction operation at the beginning but repented of the latter, and does it now early in the morning, and in from five to six hours he extracts the lens. The advantage of this is twofold. In the first place you can do a larger and better capsulotomy when the cornea has not been cut than you can after the corneal incision has been made; make a large crucial incision in the capsule from side to side and up and down, and then at the end of about six hours, the lens has been loosed from its attachment to the inner surface of the capsule so perfectly that the least little pressure will bring it out and will bring it out almost completely. It is a rapid ripening of the cataract, if I may use that term.

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Dr. A. C. Lewis, Memphis: I can not consider any discussion of cataract operation complete that does not lay more emphasis upon the corneal stitch. Dr. Simpson mentioned it but not much has been said about it. Some of you present I am sure, attended our clinical meeting over in Memphis last year and saw a case that I had at the City Hospital there; if so, I am sure you remember the case. I did not realize what kind of a patient she was, or I would have certainly given her a general anaesthetic. Besides being exceedingly nervous, she was half-witted, and I had most of the complications that the books describe in this operation. I undertook to demonstrate the advantage of the corneal suture and I think I satisfactorily did that much anyhow. In the first place I had a great deal of trouble getting the stitch placed because the conjunctiva was very friable and I had trouble holding the eye. The patient gave me no assistance and she was continually rotating the eye. After getting my stitch satisfactorily placed, in making my section and after getting into the anterior chamber with my knife, you remember that she began to buck and the conjunctiva tore loose and I had nothing to hold to. I had to take my knife out, the section not half completed. I completed the section with the scissors as best I could, and did no iridectomy but went in with my capsule forceps and got a part of the capsule and along with it the lens came a great gush of vitreous. I quickly tied my corneal suture closed the eye and kept it in that condition and did not make any toilet of the wound afterwards. The eye was very soft and remained in a highly inflammatory condition for two weeks and I thought it was going to be lost but it was not. I saw that same old woman about four or five weeks ago and she had a good eye. I did not take her vision, but I am sure that it was almost normal. There is no question but that she would have been blind in that eye today but for the corneal stitch and I am sure a great many eyes can be saved by the corneal stitch just as that one was. Safety is not the only advantage of the corneal stitch, usually we can leave a normal pupil, an iridectomy being unnecessary. We get less astigmatism I find in these cases because we get a better approximation of the corneal incision. As to the time to operate; in my opinion we should not operate as long as the patient can attend to his business, or his duties, and read and get around by himself. As soon as a patient can not get around alone and enjoy the duties and the pleasures of life, I see no reason why we should wait no longer for the full maturation of the lens. In the meantime, however, I always use dionin, and I am sure I get good results. The lymphagogic action of the dionin certainly helps to clear up the lens and in these incipient cataracts we can often postpone these operations a long time.

Dr. Ezell, Nashville: I should like to ask the doctor when and wehere do you make this stitch?

Dr. Lewis: I place the stitch just before making my incision.

Dr. Ezell: Would you mind showing us on the blackboard, doctor please?

Dr. Lefis: (demonstrating) The suture enters the cornea at this point 2 mm. from the limbus above. It emerges about 1 mm. from the point of entrance, and toward the limbus in a vertical direction, making a superficial corneal stitch. It is then passed across the limbus and a horizontal stitch is made in the conjunctival and episcleral tissues about 2 mm. from the cornea. The two ends of the suture are now brought together with a single knot and left in position to be drawn tight after the incision is made.

Dr. Savage: How do you get that suture out of your way when you want to make your incision?

Dr. Lewis: Make the loop large enough not to be in the way of the knife.

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Dr. E. B. Cayce, Nashville: Mr. Chairman, I want to throw out just one word of warning in regard to the Homer Smith, and that is I don''t think you can set any definite time about when you should make your section, do your extraction. I think the thing to do is to needle the lens and wait until the lens is thoroughly ripened, white. I think if you do it too early you will leave so much nucleus that you may get secondary glaucoma; I speak with feeling on that because I recently had just such conditions.

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Dr. H. E. Christenberry, Knoxville: Just a word. There has not been much said about an intracapsular cataract extraction, only in a matter of criticism and condemnation to some extent. Personally I favor that procedure, having been drilled in it and thought that I partially had perfected it from what experience I have had, it has been the near ideal operation to me. We do not have to go into the eye with so many and different instruments, thereby presenting the danger of infection and of doing so much traumatic injury. It is very easily practiced o nthe pig's eye or the cat's eye, as Fisher recommends, and I do not see why that any one who will try to perfect that method can not do the intra-capsular cataract extraction. You say you lose vitreous; well you lose vitreous in the other operation. You do not lose any more in this if you are careful in your technique, put your pressure in proper position, and know when to quit, than you do in the other operation. I have seen both operations and witnessed them in the hands of some good men in the North and East and throughout our section and I have seen just as many failures in the old method as I have in the intra-capsular cataract extraction.

I do hope that some hero will come forth with a discovery which will prevent cataract. That appeals to me more than any operation.

Dr. John Green, Jr., St. Louis, Mo.: One of the most difficult classes of cases to manage from the standpoint of the patient are those cases of immature cataract in both eyes in which vision has failed to about an equal degree, say to 20-150. Patients such as these are unable to see well enough to continue in any occupation requiring accurate use of the eyes. In cases of this character, it seems to me that practitioners have not resorted as often as they should to the procedure so eloquently described by Dr. Savage, "Homer Smith" preliminary capsulotomy. In such cases I have resorted to this procedure. In the first few cases that I did, I was a little timid about making the crucial incision, I did not make a large enough one nor did I make a deep enough one. I think it is important, to make a "cross" extending from the lower pupillary edge to the upper pupillary edge, and from right to left, and to make it so that the knife actually enters this superficial layers of the lens. My practice is to do this prelimnary capsulotomy early in the morning and the extraction late in the afternoon. In that way I complete the whole job in one day, and the lens does not become so swollen as to produce symptoms of secondary glaucoma. I should like to ask Dr. Potter if he has had any experience with the "non-operative" treatment of cataracts. I have special reference to sub-conjunctival injections of cyanide of mercury, and to local application of weak solutions of potassium iodide. I do not know whether this method originated with Col. Smith or not, but it has certainly been advocated by him and there have been a number of men in this country who have stated that, in some cases, at least, it does good .

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Dr. E. C. Ellett: Dr. Potter read Dr. Vail's paper just like I did, but by his new method, Dr. Vail means either the Smith-Indian operation or the removal of a big piece of the capsule, and all of his strictures are against the condition which will follow the Homer-Smith or any other method of capsulotomy, in which the whole capsule is left in the eye.

I don't think Dr. Potter emphasizes sufficiently the main thing about our preaching that it is not necessary to wait until the cataract is ripe. Patients come and say, 'My family doctor told me to wait until my eye was blind." And he is blind alright from glaucoma. If some of these patients could be seen earlier, in some of them the vision could have been saved.

If Dr. Savage had read the Journal he edits, he would not have had to wait for the details of the Barraquer operation. It has been published months ago with illustrations, in his Journal.

Do we want to do intra-capsular cataract extraction? The intra-capsular cataract extractions that I have done have been immediately beautiful and ultimately disappointing. They nearly all developed in time vitreous opacities and six months later the result is far less satisfactory than the old operation of leaving the posterior capsule in place.

I have been asked to say something about the corneal stitch. If Dr. Ezell would look up the transactions of the American Academy of Ophthalmology and Oto-larygology for 1911, and of the Section on Ophthalmology of the A. M. A. for 1912, he will find two articles with many illustrations about the corneal stitch. You have to have a special needle and thread. There is not a needle made in this country by which you can insert this corneal stitch properly. The point of the needle is entered in the vertical meridian of the cornea about 1 mm. below the limbus and passes into but not through the corneal tissue, like the intestinal suture. It emerges at the limbus, is drawn through and passed in the same way into the episcleral tissue above and parallel to the limbus. It should engage the sclera, and when drawn out, the two portions of the suture are like a T with a gap of .5 mm. (half a mm.) between the vertical and the horizontal portions. A long loop is left and put to one side. The incision is made at the limbus in the usual manner, passing between the two portions of the suture. The lens is extracted in any way you wish, that is, as concerns the iridectomy, capsulotomy, etc., and after the lens is delivered, the suture is drawn tight and tied. The toilet of the wound is then completed. This is Kalt's technique. The suture is not absorbable, and is removed on the third day.

Dr. W. W. Potter, Knoxville, (closing discussion): Gentlemen, I am gratified at the discussion because I learned from these these discussions, and I am benefitted; I think it benefits us all to talk about them. In the first place, about the non-operative treatments that Dr. Green mentioned. I personally have not had any experience at all with that. I know of articles that have been written, and I have read them with a great deal of interest. That is really the ideal to be perfected, the treatment that is sure. That is the idea that we have in view, I think all of us, to reach that point where we do not have to operate.

Now, one other point about the Smith-Indian operation. Dr. Ellett asked the question whether or not be wanted to do that operation. I think he has well said that he does not want to do it; that he has done it a few times, but not with the best results afterwards. The thing that impressed me most in the Smith-Indian operation as done by some of our men in this country, notably Fisher, is the fact that he did not do the Smith-Indian operation. I saw eight cases that he did at one sitting, at one time, supposedly the intra-capsular Smith-Indian operation Six of these cases had to be needled afterwards.

# SPHENOIDAL SINUSITIS AND REPORT OF CASES.*

By J. McChesney Hogshead, M. D.,
Chattanooga.

Before I begin my dissertation, I wish to explain that this subject is not of my own choosing, but was assigned me.

It is my belief that the sphenoidal conditions go more often unrecognized, and even if recognized, more often untreated, than any other pathological condition in the scope of the nose and throat specialist.. It is only fair for me to admit that I palliate more with an infected sphenoid than any other sinus, and I believe this is the habit of most other nose and throat men. However, in a well defined case, I do not depend upon palliative measures and I do not think anyone else should.

The sphenoid sinus, as you know, occupies the body of the sphenoid bone, being situated directly behind the ethomoid capsule at the posterior and superior portions of the nasal cavity. It may be most any size, large or small, regular or irregular, and divided into one, two or three separate cavities, depending upon the number of partitions and the amount of re-absorption of spongy bone.

The normal sinus, however, may be compared to a cube with six sides and in the disarticulated specimen we will notice that the anterior walls seem to be entirely lacking. This is where the ethmoid capsule fits in and makes up this wall, all except a little opening, known as the ostium. This opening is usually about half way from the bottom of the sinus, looking anteriorly, and, like the maxillary opening, does not make for free drainage.

The posterior and inferior walls are formed of compact bone from three to ten mm in thickness, and seldom show any variations in shape. The superior wall is subject to many vagaries, not only in shape and position, but also in extent and thickness. Dehiscences have been reported on this structure in which the sinus mucosa lay in direct contact with the dura. One never knows when these abnormalities exist, and for that reason, it makes operation on this sinus peculiarly dangerous. There is one case on record in which the optic chiasm was found post-mortem within the sphenoidal sinus. It would be sad indeed if we should run into one of these peculiarities in opening the sphenoid for drainage. I do believe, however, that this is quite rare and the report of one case should not deter us from operative procedure when it is thoroughly indicated. It is the close relationship of the optic nerve to the sphenoidal sinus which makes retro-bulbar neuritis a frequent accompaniment to a purulent sphenoidal sinusitis. There are many peculiar anomalies and formations which we can imagine exist, due to deviations, over-extension, or unnatural enlargement of the cavity, or encroachments from the surrounding structures.

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*Read before Section on Ophthalmology and Otolaryngology at Annual Meeting of Tennessee State Medical Association at Nashville, April, 1921.

Regarding the inflammations, I might say that it is rare that the sphenoid becomes infected, without some of the other sinuses, particularly the posterior ethmoid cells, sharing the infection. The latter, however, by reason of their better drainage, may entirely recover, leaving the disease isolated in the mucosa of the sphenoid. Thus the condition may persist indefinitely from one cold to the next, finally becoming purulent. This, however, is a rare condition, considering the fact that the mucous lining of the sinuses is involved with every attack of acute coryza. When the mucous lining the the sphenoid sinus becomes greatly affected from the general inflammation of the nasal mucosa, certain symptoms ordinarily not present, even with a severe cold in the head, manifest themselves. The headache is more severe and becomes vaguely localized in the parietal and temporal regions, often radiating to one or both ears. The ears themselves have a peculiar feeling which is something more than the discomfort resulting from the occlusion of the Eustachian canals. Ocular. symptoms, particularly tenderness of the eyeball, are often marked. Fever higher than usual with an ordinary coryza, sleeplessness, more or less dizziness and general malaise complete the chain of symptoms. The diagnosis is comparatively certain if these symptoms continue after the time one would reasonably expect those of an ordinary cold in the head to show signs of subsiding. The vast majority of acute inflammations within the sphenoid sinus recover either with or without direct treatment, but it must be remembered that following every attack, there remains a greater predisposition for the sinus to become again involved at every fresh attack of coryza. Under these circumstances, we must consider that successive attacks of acute inflammation play no inconsiderable role in the etiology of the chronic form. Any anatomical irregularities, such as deviated septum or pathological products, as polyps or hypertrophies, which contribute towards partial occlusion of the spheno-ethmoidal fissure, must also be classed as predisposing factors.

The diagnosis is made by seeing a purulent secretion coming down over the posterior end of the middle turbinate. The greatest accumulation is present in the morning, directly after rising, as during the night the secretion has a better chance to leave the sinus on account of the lowered position of the ostium. Changes are invariably present in the posterior and often the lateral pharyngeal walls. **Pharyngitis sicca** is perhaps the most common, the following variety being pathognomonic of sinus disease. The posteiror wall of the pharynx is dry and smooth, having an appearance as though covered with a thin coat of shellac. The condition seems to be intensified as it disappears upward behind the uvula, while there is a gradual shading off into comparatively healthy mucous membrane, as it descends toward the larynx. This is readily explained when we consider that the secretion comes from above and, being hawked out, but a comparatively small quantity descends below the pharyngeal orifice.

Another form of pharyngeal inflammation, which is also pathognomonic, is known as **pharyngitis lateralis.** In this variety the mucosa at the junction of the posterior and lateral walls shows a marked hypertrophy, being hyperaemic and swollen so that it has the appearance of a raised tract about half the size of an ordinary lead pencil, situated on the diseased side. It is along this tract that the secretion finds its way into the throat.

If pus is found exuding from the region of the posterior end of the middle turbinate and reappears when mopped off, it is almost pathognomonic and our diagnosis is made. This is one condition where the x-ray is of little or no value whatever. Skillern, in his book on accessory sinuses, gives a very classical description of the sounding technic, but this has never appealed to me from a practical standpoint. It is my belief that you get the same results shrinking down the tissues in this neighborhood with adrenalin-cocaine solution and do less damage than you do by attempting to probe into the sinus. If the case does not react to treatment in a reasonable length of time, probing of the natural opening can then be done and, with a sphenoid punch of some kind, the anterior wall can be broken down and cut away, and the sinus irrigated, when recovery will nearly always result.

### Case Report

Case 1—Mrs. R., age 28 years; came to me in October. Complained of headaches and failing eye-sight. The pain, she said, was of a dull, heavy type, located behind the eyeballs, and would be almost constant over periods of a week to ten days; then it would disappear and she would be free from it a few days or a week, when it would return. During these attacks patient would notice that her eyes bothered her and lately she has had to give up her sewing and reading because she could not see so well as formerly, and found that attempting to use her eyes would aggravate the headaches. Her vision had gradually become worse and at the time I first saw her it was reduced to 20-100 and could not be improved with any kind of lens. Examination of her eyes showed a swollen nerve head elevated 3-4 mm. (20) indicating a retrobulbar neuritis.

Examination of the nose at first seemed to show nothing abnormal, but on shrinking the turbinates down with adrenalin-cocaine solution, a little bead of pus was seen along the posteror edge of middle turbinate, and this seemed to reappear when it was wiped off. The same thing was found in the other side, and with this evidence, coupled with the history of headaches and failing vision, and with a further history then elicited of constant continual dripping in back of throat, a diagnosis of suppurating posterior ethmoids and sphenoid was made.

Complete exenteration of these cells was done under a local anaesthetic. In two weeks the headaches had completely disappeared and the eyesight improved to 20-40 in both eyes.

I saw this patient in February and she tells me that she has been completely free from headaches and has had no trouble whatever with her eyes. She can use them as long at a time as she likes with no discomfort at all. Vision is now 20-30 plus in right, and 20-20 in left eye. She has also gained about 12 pounds, and feels well all the time.

We have numbers of cases of this kind every year and we get practically the same gratifying results as we did with Mrs. R. There is always a marked improvement in vision, and a relief from headaches, but the only trouble we experience is sometimes we do not get all the debris removed from the cells and granulations will form, which have to be curetted out later.

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### DISCUSSION.

Dr. A. C. Lewis, Memphis: The diagnosis of sphenoidal sinusitis is by no means easy. In fact, I think the majority of cases are never diagnosed as such, or treated for this condition. Of course most of them get well without being recognized or treated. The reason the diagnosis is difficult is because the symptoms are very variable. The symptoms, both objective and subjective, are uncertain. The x-ray pictures are indefinite also. The subjective symptoms, of course, depend entirely upon whether or not free drainage is present. Where the drainage is free the symptoms are mild: but where the drainage is obstructed or deficient, the symptoms are apt to be severe. Where the drainage is deficient ocular changes are apt to occur and numerous constitutional symptoms.

The objective symptoms are also uncertain. The patient may have all the text-book symptoms of sphenoidal disease; the position of the pus, the consistency of the secretions, and the appearance of the posterior pharangeal wall may be typical. Still the sphenoid sinuses may be free of pus and the discharge be from one of the other sinuses.

I am reminded of one case I had some years ago, where I was positive that it was a sphenoidal sinusitis. I was positive because the pus was coming out of the naso-pharynx and out of the superior meatus in large quantities, and the posterior pharyngeal wall presented the classical picture of the disease. The pharyngitis sicca and pharyngitis lateralis as described in the text-books was present. I did not have an x-ray picture made but simply went ahead and removed all the ethmoid cells, and went back on the sphenoid and found it perfectly clear. At the same time I saw pus coming out of the os of the antrum.

As to the value of the x-ray pictures: they are helpful, and should always be made before operating, for they will show the dimensions and positions of the sinuses. They are often indefinite though and assist very little in the diagnosis of the disease.

I had another experience last month with x-ray pictures. There was a lady referred to me by Dr. Bunting, one of our neurologists, with a history of tic doloureux of four years duration. He said he had had a number of x-ray pictures made, showin gthe right antrum very cloudy; he also said that a radical operation had been done on this right antrum several years before for the same trouble. The pain was all in the left side however,—the left cheek and eye, but the picture showed the left antrum clear.

He wanted me to explore this right antrum again. They sent the pictures over, ten of them in number, I believe, and sure enough, the right sinus seemed quite opaque. On examining the patient I found an antrum operation had been done, and there still remained a large opening beneath the inferior turbinate on the right side. I irrigated the antrum and found it perfectly clean. So then I turned to the left antrum. The bone was very thick and I had some difficulty getting the needle through. I found we had a case of vacuum antrum and could neither force water or air into it. After making a large opening through the naso-antral wall beneath the inferior turbinate on that side she had immediate relief. That was five weeks ago and she has had no more pain since. She had been a continuous sufferer for four years; and had all of her teeth removed, and been to numerous doctors. In this case the x-ray misled the surgeon who operated on the right antrum, and the neurologist thought surely the right antrum was causing the trouble if either was. The bones in this woman's head were very thick, thicker than any negro's I ever saw.

In operating for these cases I have never seen the posterior route employed that Dr. Hogshead described, and have never used any operation except that of removing the middle turbinate and and the ethmoids in order to expose the anterior surface of the sphenoid. Dr. Pratt, of Minneapolis, claims that it is never necessary to remove any of the turbinate in order to open up the ethmoid capsule and open up the sphenoid.

I would like to say one word about the treatment of these cases. Many of them will get well by pallative measures, that is, by using the common suction apparatus, first shrinking up the tissues with cocaine and adrenalin, and the use of suction thoroughly in your office. If necessary have the patient get one and use it at home.

Dr. J. J. Shea, Memphis: I want to say a word in defense of the x-ray. Every time it has been mentioned in this meeting, so far, it has been condemned. Now, gentlemen, we want to be careful about condemning the x-ray, because it has a place; but the real appreciation of the x-ray is in understanding the interpretation of them yourself, and not to rely on what the x-ray man tells you; and if you will have in your dark room an x-ray box over your patient's stool and in the transillumination look at your plate a time or two, then the x-ray will aid you.

In sphenoid work the value of an x-ray plate is in the comparison of the two pictures taken; if on the anterior-posterior view the 23 angle picture is taken the sphenoid will show in the middle of the nares. If the sphenoid is clear and is not filled with mucous it should be made out as a clear heart-shaped object. Now the lateral view gives you the best interpretation as to size. If the lateral view shows the sphenoid to be of fair size this clear heart-shaped object in the middle of the nares, then there is something in the sphenoid, so that it is the comparison of the two views of the x-ray that is of value in your sphenoid work. Every sphenoid case should have the vision taken, not only for the present; but as a comparison as to how your case progresses, either favorably or unfavorably. The operation that we are now using for sphenoid work is much more satisfactory, because we are doing the sphenoid operation as an entity, of itself. I think we were misled when we were taught to do the ethmoid and then go from the ethmoid into the sphenoid. Gentlemen, the relationship of the posterior ethmoid cells with the sphenoid differs so in every case that you can not enter the sphenoid freely from the posterior ethmoidal cells. The procedure which we now use is a thorough cocainization, including the injection of spheno-palatine ganglion with a two per cent novocain solution, which will give you an anaesthesia over all the posterior branch of the nasal palatine, including those that go back to the sphenoid, and thus the procedure is relieved of some of that severe pain which often accompanies posterior ethmoid-sphenoidal work. We remove the middle turbinate first. We use the small remaining portion of the middle turbinate that is against the back wall as our guide in entering the sphenoid. Knowing that after measuring a considerable number of cases as shown that the posterior wall of the sphenoid is seldom closer than 8 cm. from the tip of the nose. Appreciating this, one is armed with the assurance to puncture directly into the sphenoidal cavity. By the aid of the intra-nasal suction tip, especially designed for ethmoidal and sphenoidal work, the field may be kept dry and the anterior wall of the sphenoid completely removed. Be respectful of the outer lower angle of the sphenoidal wall, for in this region is situated the sphenoid palatine artery and injury to it will promote acute hemorrhage, which will interfere with the progress of the operation.

The floor of the anterior wall is composed of cancellous bone which, as you know, is very productive of granular tissue. Having completed the removal of the anterior wall of the sphenoid, work from behind forward and from above downward. In this manner the field can be kept dry and the work be at all times under direct vision.

The after treatment of the sphenoidal area may be summed up into the treatment of the granulations. At first I use silver and later the actual cautery.

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Dr. C. D. Blasingame, Memphis: I want to report a case that is very interesting from the standpoint of entering the sphenoid at operation. I did a post on the case, although the operation was done by another man. In attempting to enter the sphenoid, which we found had no natural opening on the side being operated, (but a rather large one on the opposite side), an opening was made too high and entered the brain cavity, resulting in fatal meningitis.

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Dr. H. E. Christenberry, Knoxville: Just a word in regard to Dr. Lewis' case, the thickening of the bone, or osteitis; we usually find that in these cases is caused by some disease of the pituitary gland, and of course in a sphenoidal inflammation we are very apt to have an inflammation of the pituitary gland. In most of these cases you will find inflammation in or about the gland. That is an indication for the x-ray, because if we have x-ray pictures, of course, anterior, posterior and lateral, we can usually see as to whether there is any change or involvement of the pituitary gland. I just wanted to drop that in with regard to symptoms in the case that he brings out. We should, always have x-ray pictures before attempting serious operations, and we should have them before us in the operating room. They are a good guide in the time of trouble.

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## DIAGNOSIS OF DISEASES OF THE KIDNEY AND URETER.

By W. H. Cheney, M. D., and Franklin B. Bogart, M. D., Chattanooga.

The comparative value of the kidneys to the human body and the strenuous task which is imposed upon them as secretory organs places them in a role of primary importance.

Their anatomical location has been appointed with such nicety that the value of their working capacity as filters is somewhat augmented and lessens to a greater or less extent the invasion of the body by disease. The above statement also applies to the ureter to a less extent. The kidneys are influenced to a degree by the fluid intake and also by the general elimination of the body. The environment of the individual further influences their function.

It is difficult to draw a line of demarcation between primary diseases of the kidney, diseases which occur in the kidney as a result of disease elsewhere in the body, and diseases which first occur outside of the kidneys and eventually attack them. When we take into consideration the location of the kidney, its anatomy and physiology, with particular reference to its blood supply, it becomes apparent that many diseases of the kidneys are secondary in origin.

The urine is an excellent index to the status of the kidneys. Approximately one thousand to fifteen hundred c.c. are eliminated in twenty-four hours. The amount eliminated by the female is slightly less than that of the male. Any great increase or decrease from the above amount should be noted. However, one must take into consideration that the skin eliminates as sweat from five hundred to six thousand cc of fluid, the lungs from four to six hundred cc, and the intestines may also eliminate varying quantities at times. Therefore while the kidneys play the important role in the elimination of fluid, they are not the only means which the body has of maintaining its fluid equilibrium.

Eisendrath (1) in his article on "Diagnosis of Tuberculosis of the Kidney," made the following statement: "Any case of cystitis which does not rapidly yield to treatment or recurs at intervals without apparent cause, demands a thorough urologic study." It may also be stated that if there is frequency of urination and repeated chemical and microscopical examination of the urine reveals no pathology, such conditions as cerebral syphilis and pituitary involvement should be carefully considered.

**Specific gravity.**—The most important factor in specific gravity determination is the value of estimating the ability of the kidneys to adjust themselves to the intake of fluids. That is, does the specific gravity of the urine increase when large quantities of fluid are taken?

**Red and White Blood Cells.**—An occasional red cell may be found passing through mucous surfaces and this is true with respect to the genito-urinary tract. However, if they persist and occur in any quantity, one's attention should be attracted to the possibility of tuberculosis of the kidney, stone, or tumor in the kidney or ureter. As stated by Haggard and Douglass (2), an early diagnosis in the latter type of case is many times essential for the future welfare of the patient. An occasional white cell may also transude. However, if persistent, they should not be overlooked, and one should think of the possibility of pyelitis or ureteritis. Careful examination of the urine in such cases should include:

First, culture on ordinary media, on litmus, lactose agar plates, and in dextrose broth fermentation tubes.

Second, injection of guinea pig for tubercule bacilli.

Third, microscopic examination of urine for organisms by Forsell's, Crabtree's, or Loeffler's method.

It has been stated by Barney and Wells (3) that urine from a tuberculous kidney is not so apt to contain other organisms as the urine from a sound kidney in the same individual. Spooner (4) in 1918 made a careful bacteriological study of ten tuberculous kidneys removed at operation. He could demonstrate the tubercle bacillus in all of them and found secondary infection absent. No reason was assigned except a possible high acidity.

**Albumen**—In the limited time at our disposal, it is evident that an adequate discussion of acute and chronic nephritis cannot be entered into. Therefore, we will pass them over with the statement that one should always be on the lookout for such conditions. A small quantity of albumen in the urine unaccompanied by casts may not be of serious import, especially if it is transitory. It may be from focal infection, syphilis, etc., and every effort should be made to find a cause outside the kidney before it is pronounced early nephritis. Even when it is found that the individual has a high blood pressure, one's effforts to find the cause should not stop, for it is a well known fact that such a condition as focal infection frequently causes high blood pressure. Blood urea and blood creatinin determination should be a routine measure, especially in sub-acute and chronic nephritis, as much valuable information is gained in this manner.

**Sugar**—Sugar may also be cyclic and a complete diagnosis will many times reveal no involvement of the kidneys. There may be a disturbance of metabolism from an involvement of some of the endocrine glands. Syphilitic infection may cause glycosuria. Blood determination should not be forgotten in these cases. Glycosuria due to syphilis is not associated with hyperglycemia.

**Stones**—Ninety per cent of kidney and ureteral stones may be diagnosed with the x-ray, therefore this is an indispensable procedure in suspected cases. The bladder as well as both kidneys should be radiographed, since pain in occasionally referred. If the shadow of the stone is indefinite or absent in a suspected case, the injection of thorium into the pelvis of the kidney followed by x-ray will facilitate a diagnosis between stone and calcified areas.

Thorium injection followed by x-ray should be done to differentiate between kidney and gall bladder stones.

Stones in the kidney or ureter are not necessarily accompanied by pus. The urine in about ten per cent of these cases is entirely negative.

**Syphilis**—In the past five years we have had nine cases of syphilis of the kidney. In three of these cases the presence of sugar in the urine was the first indication of the existence of any definite pathology. The sugar in two of these cases was transitory and, therefore, only found at intervals. The blood sugar was normal. In one of these cases there was a four plus Wassermann and anti-syphilitic treatment was administered with complete amelioration of clinical symptoms. The second case had a three plus Wassermann and is still under observation. The chief symptom in the third case was very severe pain in the right upper quadrant, which was so severe that she was confined to her bed. In a complete study of her case, which was being made preparatory to surgical procedure, which was thought by the surgeon to be imperative, glycosuria and a four plus Wassermann were found. Anti-syphilitic treatment relieved the pain and caused the sugar to disappear, after which the patient refused further treatment and finally died two years later with manifestations of cerebral syphilis.

The other six cases were apparently acute in character as far as their clinical symptoms would determine. The Wassermann titration in all of these cases gave a reading of four plus. Their cardinal symptoms in regular order were: first, hemorrhage from kidney; second, pain in region of kidney; third, irritable bladder; fourth, albuminuria (probably due entirely to blood cells) without casts.

Four of these cases presented themselves on account of hemorrhage. Two of the four sought advice on account of pain as well as the hemorrhage. One of this number was a practicing physician who knew he had had a syphilitic infection. However, he deemed quite sure that syphilis of the kidney could not produce his symptoms, which he supposed were from stone in the pelvis of his kidney. The two remaining cases asked relief on account of pain and frequent voiding. Kidney or ureteral stones were suspected in these cases. No evidence of pathology was found in the urine. The x-ray findings were negative. The Wassermanns were positive. There was evidence that one of these cases was heriditary and the other gave a history of having had syphilis. Of these six individuals four were clinically cured. The remaining two were relieved. The two who received only partial relief have been under observation for five years and they refuse treatment except when their symptoms, that is, pain and frequent voiding of large quantities of urine, become annoying. In the last two cases there was probably no syphilitic lesion in the kidney itself, but the disturbance in the kidney was caused by syphilis of the central nervous system.

**Pain**—Pain as a diagnostic entity is quite valuable in kidney and ureteral lesions, but is is not necessarily present. Even the classical pain which radiates from the lower quadrant of the abdomen to the testicle, pelvis, or inner side of the thigh is not constant. Pain, many times, does not accompany kidney and ureteral stones unless the stones change their position. The position may be changed by a sudden jar, as missing one's step, injury to the body in the kidney region, or excessive muscular action. The same type of pain may occur and does occur just as suddenly from ureteral blocking caused by stricture of the ureter or the damming of the ureter with solid particles in the urine, such as pus, blood, etc. Furthermore, distention of the ureter and kidney does not always produce pain. We occasionally see cases of hydronephrosis without pain, even when dilation of the renal pelvis is so great that pressure symptoms on the surrounding structures become evident.

Pain, in the right side, in these cases is particularly deceptive, as a crisis in any organ in the kidney region may be mistaken for kidney involvement. We have seen appendiceal pain, ovarian pain, duodenal pain, pyloric pain, and gall bladder pain, which could not be diagnosed from kidney and ureteral pain without an exhaustive study of the case.

A dull, aching in the lower quadrants which has long continued should bring to mind ureteral stricture. Dr. Guy L. Hunner, of Baltimore, has rendered the profession valuable service by diagnosing many of these cases which had been overlooked. Previous to Hunner's investigations, operation on this class of patients was unfortunately frequently. It is a well known fact that the appendix or ovaries have frequently been removed when the symptoms were caused by a utereteral stone or stricture. Calcified areas in the right kidney were supposed to have been found with the roentgenogram and at operation proved to be in the gall bladder. This is criminal negligence which should be charged to the diagnostician, as a thorium injection followed by a roentgenogram of the kidney pelvis would serve to different these two conditions. We feel justified in insisting on not only complete urologic studies of cases which have symptoms of kidney or ureteral pathology, but general investigation of these cases should be made including complete histories and physical examinations.

In making a complete urological investigation a thorough study of the urine should be made both chemical and microscopical, and, when indicated, a culture of a catheterized specimen.

Following this procedure the cystoscope may be passed, the bladder investigated, and both ureters catheterized. Strictures and stones may also be sought for by means of the wax tip catheter. Urine should be collected from both ureters and carefully examined. It is no more important to discover the diseased condition ot a kidney than it is important to know that its mate is functioning normally, particularly if surgery is contemplated. Recently we had a case referred to the laboratory for radiographic study. She had previously had her right kidney removed without a thorough investigation being made. The x-ray examination gave evidence of several very large stones in the left kidney, and there was also a large quantity of pus in the urine. After ureteral catheterization phenosulphophthalein may be given intravenously and a two hour functional test made of each kidney. This test has proven quite satisfactory in our hands. If pathology exists in either kidney, fifteen per cent thorium may be injected followed by a radiogram of the kidney, pelvis and ureter. We do not think it advisable to inject thorium in both pelves at the same sitting, as by so doing too severe a reaction may occur with pain, nausea, vomiting and even collapse, due to suppression of the kidney function.

Ureteral catheters which cast a shadow are valuable if the examination is followed by a radiogram, as the direction of the ureters will be well defined.

If mercurochrome or nitrate of silver are to be injected imediately following thorium it is advisable to wash out the pelvis of the kidney, as thorium will precipitate either mercurochrome or nitrate of silver.

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Dr. W. H. Cheney, Chattanooga, (closing):

I wish to mention particularly ureteral stricture, which in my opinion has been neglected more than any other condition of the urinary tract. Hunner's work on this subject has been of inestimable value. He has been censured for being too zealous in his diagnosis, but no doubt he has pointed to a neglected field, heretofore unnoticed. I wish to present to you a picture which is rather typical of a case of this type. We have seen several cases similar to this one—a young man who had been suffering for nine years with a periodical pain in the right side of the abdomen. While attending a medical school in Atlanta, he was advised to be operated on for a chronic appendix. This operation was performed with no relief. The study of medicine became such a task, accompanied by this strain of periodical pain, that his father and brother, who were doctors, advised him to give up his chosen profession, which he did. These spells of colic occurred every two or three weeks, and were so severe that at times the administration of two grains of morphine was necessary to give relief. Under protest he was sent to the army during the late war. While marching, one of these attacks occurred, and he fell to the ground. He was immediately sent to the hospital, and an exploratory laparatomy was advised; this was refused, since he had had one exploratory incision. During one of these attacks he came under Dr. Winter's care in Chattanooga. Dr. Winters referred him to my laboratory for a complete study. On cystoscopic examination pus was found in the urine, which came from the right kidney, and there also was a stricture situated about three inches frim the ureteral orifice in the right ureter. This stricture was dilated, which gave relief.

# ACUTE ECZEMA AND ITS MANAGEMENT.*

By J. M. King, B. S., M. D., Professor of Dermatology, Vanderbilt University, School of Medicine, Nashville.

In assuming control of a case of acute eczema the treatment and management depends upon two things. First, a conception of the cause of the trouble, whether it is internal or external. Second, a clear notion of the pathology of the local manifestations in the skin. On the first proposition textbook authorities find some difficulty in arriving at an agreement, some stating that the eruption is due to internal system disturbance, while others are inclined to believe that the lesions are produced alone by some external irritation.

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*Read at Annual Meeting Tennessee State Medical Association at Nashville, April, 1921.

Observation and experience have led me to believe that eczema is due primarily to some form of abnormal constitutional state and secondarily, at times, to some required external irritation brought to bear upon the skin of an individual whose system is already in an abnormal state. There is practically no controversy on the histologic pathology of eczema.

With this view of the case in mind, a careful plan of internal and external medication must be outlined.

Our first duty is to devote attention to the internal condition, to study and understand if possible, how a human system can become so much disturbed as to produce substances within itself so irritating and poisonous as to cause an eczematous eruption.

Let us assume that a man presents himself with patches of acute weeping eczema on his arms, body, thighs and legs. He has not been near or about any external irritating substances to cause the eruption. Without any external influence as far as could be observed the skin began to get red and swell, then began to itch, and to vesiculate. The man scratched and rubbed off the tops of the vesicles, and the surface began to weep, forming a suitable surface for local infection.

What could bring about such a condition? Notwithstanding the efforts of Una, Sabarand and Whitfield, no micro-organism has yet been found to cause this eruption. In scabies, tuberculosis of the skin, and syphilis there is a specific organism to cause the eruption, but in urticaria, lichen planus, and erythema multiforme, it is the general belief that a system disturbance, the exact nature of which is not known, causes the eruption. The strongest advocates of the external causation of eczema cannot ignore the influence of the nervous system in producing the eruption, for it is generally admitted that shock to the nervous system or a prolonged nervous strain may cause internal disturbance from which eczema may result. Then if an internal disturbance from this source can produce eczema, why could not a like disturbance from some other source cause it?

The question presents itself in this way: Why could not our patient partake of more food and drink than he could assimilate? Why could he not fail to eliminate the sufficient quantity of waste products? And in conjunction with this disturbed state, why could he not develop an excessively acid condition of the system? Then why could not these products of waste thus formed and retained, which affect every fluid of the body and every cell and tissue of every organ, produce eczema in parts or all over the body? Even if external irritation from soap and water, chemicals, etc., is required to develop the inflammation, is the internal condition to be ignored in the treatment? No; it is always to be considered. Underlying all is the abnormal systemic condition. Humanity is full of members who overfeed, fail to eliminate, are excessively acid and live under constant nervous strain, and out of this group come the majority of eczema patients. Now and then the asthenic suffer from eczema, but mostly from nervous strain.

There is a point in the text book literature of the subject with reference to the cause of the disease which is worthy of notice, and that is this; those authorities who argue most forcibly in the introduction of their discussions on eczema in favor of the external causation of the disease, dilate most profusely upon internal treatment, diet, rest and elimination. Under the subject of treatment they are so urgent on internal treatment that we feel an implied unconscious confession of their weakness in the argument for external causation and must observe the incongruous situation that they have just stated at the introduction of their discussion that eczema is a dermatitis of external origin.

This brief discussion is to answer the question, what could bring about such a condition in an individual that would cause the terrifying eruption of eczema? And, I think, will strengthen your faith in the belief that eczema is primarily due to an internal condition.

If it is so the internal treatment should be directed to the elimination of the substances that are irritating the skin and to relieve the vascular pressure in order to stop the swelling and infiltration. Also stop the intake of hurtful foods and drinks. Calomel and a brisk saline purge, followed daily by saline laxatives. Also facilitate the elimination of the waste from the tissues by alkalinizing the system with potassium and sodium salts, potassium preferably in order to lessen the amount of sodium chloride in the system. A glass of water every two hours. Reduce diet to milks, breads, cereals, butter and Irish potatoes for a week or even longer. Rest in bed may be necessary.

The young, middle aged, and old all have eczema, and every patient is a law unto himself, so judgment must be exercised in every case. Stimulants or sedatives may be needed.

The next and most difficult thing is to select local applications that will give relief to the red, itching, swollen limb, weeping here and there. In order to select and correctly apply the remedies the underlying pathology must be known. The clinical aspect is obvious, but the gross and cellular pathology must be recognized. The irritant was wafted to the complex structure—the skin—through the blood vessels in the corium or true skin, the primary seat of eczema. An inflammation is there set up with the associate phenomena of heat, redness and itching instead of pain, swelling and cellular infiltration. The epidermis lying over the corium in turn becomes affected. The serum pushes between the epithelial cells and they themselves become swollen and separated and more loosely attached. Pools of serum form blisters and vesicles and thus in small areas separate the epidermis from the corium. Itching excites the patient to scratch or rub off the epidermis, leaving a weeping area inviting local infection. This condition without relief will continue for days with the formation of crusts. The increased blood supply and nutrition to the growing cells in the stratum germinativum cause them to multiply in excess and the exuded serum with which they are bathed places them in such an abnormal state that they cannot undergo the natural changes of the cells to form the horny layer—they do not keratmize—and they are thrown off from the surface by the millions as soft juicy nucleated cells. This peculiar pathologic action is known as parakeratosis.

The object of local treatment then is to reverse this abnormal action on the surface. So relieve the itching, overcome the congestion and swelling, restore the epidermal cells to the natural course of keratmization, and remove local infection. Rely upon internal treatment to eliminate the primary irritant, upon local treatment to restore the havoc wrought by it.

First the surface should be cleaned, not with soap and water, but with an emulsion of carbolic acid and black wash and olive oil, equal parts of the latter and the proper proportion of carbolic acid, using pledgets of cotton. Follow the cleansing with an application of a solution of nitrate of silver, five per cent. Then during the day apply an open wet gauze dressing. Suppose the forearm is to be treated. Cut a piece of gauze about four thicknesses the right size to cover the forearm. Wet the entire piece of gauze with calamine lotion, apply to the forearm and fasten on with cotton strings. Apply loosely and tie lightly, and keep the gauze wet all day with boric acid solution. The principle involved in this application is that of evaporation, the surface is cooled, with agents that do not irritate, the blood vessels are contracted, the swelling checked, and a more normal habitat established for the epidermal cells. The nitrate of silver acts as an antiseptic and astringent. The powder in the calamine lotion with the gauze protects from external exposure, and the carbolic acid relieves the itching. Keep this up until bed time, when, to give the patient rest, remove the wet dressing and apply a cooling salve or paste. The next morning remove the salve, cleanse with the emulsion, paint with nitrate of silver and apply the wet dressing. Continue this line of treatment till the swelling is out and the epidermis practically restored, then omit the wet dressing, but continue the calamine lotion directly to the surface, allowing it to dry and serve as a covering for the tender skin and at night apply Lassar's paste with eight grams of salicylic acid to the ounce.

The remedies are old, but I feel that it is the method of application that has given such gratifying results. When the patient is dismissed, he is directed to keep the system or the urine about neutral with sodium bicarbonate—to eat meats and sweets in moderation, partaking freely of vegetable foods, except excess of raw potatoes, and have free bowel and kidney action.

## SUMMARY.

1. If it is an established fact that acute eczema is a symptom of internal disturbances, which result in the formation and rentention of irritating products, then complete and thorough elimination by increased bowel and kidney action would be the first step in the treatment.
2. If the pathology of the acute condition is correctly understood, the most soothing and cooling liquid applications, not salves, should be made.
3. The diet or habits of the patient should be regulated as after treatment.

## DISCUSSION.

Dr. Hazle Padgett, Nashville, Tenn: Dr. King has given us a most practical demonstration of the treatment of eczema, and more especially including the relationship between the various manifestations of eczema and the constitutional conditions that we call toxic or toxemia.

At one time in the practice of medicine, and that does not go back many years ago, there was a predominant feeling in the mind of the doctor that there were three classes of physical affections that struck horror to the clinical man or to the mind of the doctor, and these were eye diseases, neurology, and skin diseases. It was at that period I made up my mind I was going to prove or disprove, as far as I could, some of the mysteries of this erroneous idea, and as a result of that I became quite a student of dermatology, spending a number of months in the Skin and Cancer Hospital with Dr. Bulkley, of New York City, and in the Dermatological Department of Bellevue Hospital, and also spent some time at Johns Hopkins. Then I went to Vienna and was with Kaposi for a while. While all students realize the importance of the relationship between constitutional conditions and local manifestations, as we class these diseases, they were not recognized early. It may have been because I was a general practitioner and had worked out such relationships, that I appreciated this relationship early when it was not appreciated by the majority of dermatologists. I think I am conservative in that statement.

Eczema is not so mysterious after all. You can have the different classes of cases, such as the squamous, the papulosquamos and papular, and erythematous eczema. You can not learn these things from text books. You have to see these cases and have the disease demonstrated to you when you come in contatct with the case. These cases were always treated locally, and the constitutional side of the treatment of eczema was ignored in toto. And if I had to select just one of two things in the treatment of acute eczema I would select the constitutional treatment in preference to the local and in fact many times after using faithfully local treatment with failure one can or will cure when he directs his treatment constitutionally.

Children and people from 15 to 25 years of age come to you with some acute manifestation of ecezema and you realize the fact that there is some serious trouble. You can go on week after week making local applications, and the patient does not get well. On the other hand, if you devote your time to the constitutional conditions your cases get well. That is applicable to the treatment of eczema where you have thickening of the skin, where you have histologic changes you have to use local applications there—in fact, everything from local stimulating applications to the x-ray. The x-ray will clear up a great many of these thickened pachydermatous patches.

I am glad Dr. King has read this paper because I think I make a conservative statement when I say, as a rule, when a patient has eczema of any form and comes to the general practitioner, he writes a prescription and says to the patient, "You apply this night and morning, rub it in thoroughly, put a bandage around to keep the medicine off the clothing," and he ignores entirely the constitutional side.

I do not think Dr. King could have produced a better paper in the whole domain of dermatologica work than the one he has presented on eczema.

Dr. Deering J. Roberts, Nashville: Eczema, especially when it is chronic, is as yet among the unsolved problems of medicine, and I hope some of our younger men will devote some attention to it, because it is a miserable condition very difficult to control or to relieve.

As for external treatment locally, it is simply, so far as any experience leads me to believe, placeboic. Sometimes we get help, but it is only temporary, for the time being. Eczema is due unquestionably to some internal disturbance, abnormal metabolism trophic probably in its nature, as is urticaria. There is something going wrong in the internal economy we have not yet discovered; some poison there, whether produced by the class of food taken into the mouth, which I think is quite probable, rather than to any external, microbic or bacterial origin. At any rate, as I have said, there is something wrong with the internal economy; there is something wrong with the internal chemico-physiologic action of digestion. Some reaction takes place which we have not as yet discovered.

I can go back a number of years when a distinguished president of this Association during the latter half of his life was an intolerable sufferer from this particular disease. All looked upon Dr. R. F. Evans, of Shelbyville, as an able practitioner, a progressive physician, who had a pretty good knowledge of dietetics, and he was aided in his treatment by another pioneer member of this Association, also an ex-president, Dr. Thomas S. Lipscomb, both able practitioners of Shelbyville. In the last half of his life, Dr. Evans suffered intolerably from eczema. He could get but temporary relief by applying remedies externally, or internally.

Dr. Thomas R. Jennings, who stood high in this locality, on one occasion remarked in regard to cutaneous diseases, "Some skin diseases sulphur will cure; some sulphur and tar will cure, but there are others that all hell will not cure." (Laughter.)

Dr. J. J. Waller, Oliver Springs: I think the Tennessee State Medical Association has taken a wide step in setting in motion what we may term a pediatric section. I say that to bring up another thing, that our best experiments are carried out by the pediatricians from the fact that they deal with the infant. The infant has never had so much diet and has never been subjected to so many different irritants as an adult. Therefore, we can get after the subject of metabolism through the infant better than we can through the adult.

Dr. King's paper, so far as I could hear it, did not touch particularly upon the subject of eczema in the infant. I want to give you one point. The idea has been brought out clearly here that eczema is in some way a disease of metabolism, and is not likely to be cured by local applications, unless the internal trouble can not be corrected. The pediatricians say that in the infantile cases of eczema the trouble is generally in the metabolism of fats, and when we strike a desperate case of eczema in an infant we should look well to its diet and see that the fats are being digested, and not too much fat is given the system. We can work out a diet better in the infant; we can measure the proteids, the carbohydrates and fats together with salts and water, and get a lesson in feeding the infant that it would be well to recognize as the treatment of adults. In treating eczema in the infant I am thoroughly convinced that we will not get very far until we cut down the fats and get a well-proportioned diet.

Dr. J. M. King, Nashville, (closing): In my paper I simply laid stress on three points, namely, internal treatment, with external applications and exercise. I could not discuss eczema as a whole in the short time allotted to me, and I therefore simply took up the acute type for discussion, and I appreciate the remarks that have been made.

## MEDICAL JURISPRUDENCE FROM THE STANDPOINT OF THE PHYSICIAN.*

By S. T. Rucker, M. D., Memphis, Tenn.

Medical jurisprudence—or, as it is sometimes called, forensic, legal or state medicine—may be defined as the "science which teaches the application of every branch of medical knowledge to the purposes of the law." Its limits are, on the one hand, the requirements of the law, and on the other, the whole range of medicine. Its purpose, therefore, is to eliminate any difficult medico-legal question which may arise and to enable judge and jury to arrive at just conclusions.

The present law, which permits opposing counsel to call physicians into court to give contrary opinions in a case, has a tendency to confuse judge and jury and may cause justice to miscarry, unless, as is sometimes the case, the judge instructs the jury to disregard the medical evidence in coming to a decision. The law permits the calling into court a chemist, if an M. D., to give evidence on some problem of surgery, or a surgeon to testify on some difficult question in toxicology, if, as I take it, the evidence of all physicians is equal before the law.

It permits the existence of the professional medical expert, so-called, who, for a stipulated fee will give testimony on any branch of medicine. It has developed a class of lawyers who seem to think that the purpose of medical knowledge is to help them win a lawsuit. Such abuses as these have brought medical testimony into disrepute and made it distasteful to physicians who honor their profession to appear in court in a medico-legal case.

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*Read before Memphis and Shelby County Medical Society.

I consider the law which permits opposing counsel to call physicians in court to give contrary opinions in a case a discredit both to the medical and legal professions, and I should like to see some changes made that would put legal medicine on a higher and more efficient basis.

There are two ways by which this can be done. The first and ideal way, to my mind, is for state and national medical associations to go on record, or make it a statute of medical ethics, showing disfavor to the practice of attorneys for complainants and defendants calling physicians in court to testify in behalf of their clients, and instead recommend that physicians give court testimony only where summoned by a judge of the court. This would raise the standard of legal medicine and increase the confidence of judges and jurors in our ability to honestly and fearlessly analyze any medico-legal proposition that may be submitted to us. The second and more practical way for this to be done is for the legal profession to have a law passed conferring on the court the authority to call in medical experts, who should be under the protection of the court and adequately compensated by the public, as other officers of the court are compensated; that interested parties to a suit be not allowed to call on physicians to testify in their behalf, and in turn physicians be prohibited, under penalty, from receiving any fee from litigants.. This would necessarily require the court to seek the counsel and assistance of physicians deemed best qualified to elucidate any medico-legal question which may arise.

In case, of course, where a physician attends a patient in an illness which ultimates in a lawsuit, and said physician should be called in court to give his observations concerning the illness of patient, he should appear, as any other witness, to state facts as he saw them.

The average physician, when approached by counsel for one party, and furnished only with the facts and views of one side, and asked to give his opinion, naturally gives a one-sided opinion, and having committed himself to one side, he is thereafter rendered incapable of forming a fair and unbiased judgment upon all facts of the case. A physician is sometimes approached by counsel for one party and asked hypothetical questions; if favorable answers are given, the physician is retained to testify for the client; if contrary opinion is given, the lawyer will interview other physicians until one is found who will testify favorably for his client. I remember an instance where counsel for a railroad, in an adjourning state, came to me and asked some questions about the effects of accidents and injuries in predisposing to certain diseases. He said the railroad had been sued for damages for injuries received by a man falling from a train. My answers to his questions did not favor his side of the case and I, of course, was not called to testify in the suit. About a year later the same attorney returned and said that judgment had been given against the railroad for $5,000.00 damages. In the meantime, however, the man had died of a certain disease and counsel for his family had brought another suit against the railroad, claiming that the injury received was the direct cause of death. The attorney reminded me of our former interview and asked if I would give the same answers to the questions that I had given at that time, for, in the new suit in court, my answers were favorable to his client. I assured him that my opinion had not changed and I was called to testify in the second suit.

In order that testimony be given which will inform, instruct and assist court and jury in arriving at just determinations and decisions, it is important that physicians who qualify as medical experts should be wholly uncommitted and be able to base their opinions upon facts, observations and experience. It, therefore, seems to me obvious that this class of witnesses should be selected by the court, and that this should be done independent of any nomination, recommendation, or interference on the part of the parties interested in the suit. Compensation for such witnesses should be paid by the court out of the public treasury and arranged for as part of the cost of the suit.

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# EDITORIALS

## DR. CHARLES J. BROYLES.

Charles Joseph Broyles was born in Washington County, Tennessee, on June 17, 1862. He received the degree of M. D. from the University of Tennessee in 1888, having graduated with honors, and entered upon the practice of medicine immediately at Johnson City, where his home has been until his death on November 28, 1921.

At the time of his death, Dr. Broyles was a trustee of the Tennessee State Medical Association, having served in this capacity for seven years and having rendered distinguished service in the discharge of his duties in this position. In 1913 Dr. Broyles served as President of the Tennessee State Medical Association. He was once President of the East Tennessee Medical Association, and had also served his own county medical society as president. Few men in Tennessee have given more of real service to medical organization in the state than Dr. Broyles. He was always on hand at the meetings of the state association, and his counsel in the House of Delegates, in committees and on the floor of the General Sessions was always sought and always given careful consideration before final action was taken. Always Dr. Broyles was cheerful in his work, always he encouraged his associates in all that was undertaken for the benefit of medicine in Tennessee; never did he fail to respond to any call that came to him, never did he utter a word of discouragement which might tend to hamper in the slightest manner the promotion of any worthy cause. But when anything was proposed which he did not believe comported with the best interests of his society, or which appealed to him as in any way not in keeping with the ideals of medicine, his opposition was at once pronounced, nor did it ever cease.

For a number of years Dr. Broyles limited his work to the practice of ophthalmology and otolaryngology and achieved distinguished success. He was a leader in the affairs of his community, laboring for its advancement in every way possible. He was the chairman of the official body of his church. He was an active member of his social and civic organizations which worked for the interests of his city. He was charitable and generous without show. His devotion to his family and to his friends was intense. The life of Charles J. Broyles was worth while, the world is better for his having lived.

## ANNUAL ELECTIONS.

The New Year will soon be here, and with it will come the beginning of a new fiscal year for our county societies. In most of these societies the elections of officers for 1922 will be held at the December meetings. It should be that the officers of our medical societies are chosen with careful consideration of their fitness and worthiness, as in most instances in the past, they have been chosen. To be selected by the members of a county profession for places of leadership and responsibility is an honor, if so intended by those who cast the votes, but it does not mean much when the selection is made on impulse, or as the result of some scheme hatched up by some one to further selfish motives. The man who is made president should be entitled to preference because of his proficiency and because of his right living. He should be one who, in being honored, will bring honor upon his society. But we have seen men elected to the highest offices within the gift of his brethren simply because they happened to be sitting on the front seats when election time came. And, too, we have seen men elected by "log rolling" of all sorts for all sorts of reasons. Never yet, though, have we seen men so elected do anything worth while after they were put into office. Medical societies will languish and die under their direction, or rather misdirection. Let's get back to where it will really mean something when we say to a fellow member, "We chose you to be our leader."

And the secretary, workhorse of the outfit: Get a live one. He must not be one whose "natural gait is running away," but he must be one who can work and put some "pep" into it, and who can prevail on others to work too. Do you know, we have some county secretaries right now who have not yet reported the names of all their 1921 members to the office of the state association?

When the elections are over, go to your new president and your secretary, pay your dues and medical defense, and then pledge to your officers your loyal and continued support. And then—KEEP YOUR PLEDGE. Your society will be worth something to you this next year if you will do just that.

## THE AMERICAN MEDICAL ASSOCIATION.

The greatest medical orgnaization in all the world is the American Medical Association. It is the greatest in that its membership far exceeds the membership of any other like organization in point of members. It is the greatest in that its whole scheme of organization and operation is so thoroughly democratic. It is the greatest in that its various activities in the interest of its members and in the interest of humanity are more varied and more far-reaching than are those of any other society of its kind. It is the greatest in that the number, the variety and the excellence of its several scientific publications establish it in the very lead of all medical organizations. It is the greatest in that its publications for the instruction of the people in matters medical about which the people need instruction have been so numerous, so varied and so helpful. And in numerous other ways the American Medical Association is the greatest medical organization on this earth.

Comparatively few of the eighty thousand or more members of this great society really know how much and how diversified the wonderful work that the A. M. A. has done and is doing.

Few indeed appreciate the sacrifices that are made by the members of the Board of Trustees and other officers to see to it that the work and the business of the Association are properly carried on. From the four corners of the land these men, leaving their own work, go at frequent intervals to the headquarters of the Association at Chicago, and plan and labor zealously and earnestly for the success of our great national organization and in the service of our profession and our people. Theirs is a work of devotion which should earn for them the lasting gratitude of the profession of America.

If there were nothing more to the credit of the American Medical Association, the great weekly Journal, which it sends out to its more than 80,000 readers would of itself justify the existence of the organization and reflect credit upon its official personnel. The Journal, though while it is the leading publication is only one of the several valuable periodicals sent out by the Association. The Journal covers the whole broad field of medicine and surgery, and also gives attention to matters of medical economics, public health, education, and practically all else that is of interest to the doctor. There is not to be found anywhere a medical journal that even nearly approaches the Journal of the A. M. A. in the matter of general serviceability, and there is none that excels it in quality.

Other scientific publications of the A. M. A. are designed to cover special fields and are all of a very high order. The Bulletin, the Annual Directory, and the many other splendid publications non-scientific in character are of the greatest value.

The work of the various councils has wrought powerfully for the betterment of the American medical profession in all of its relations.

That one may secure an adequate idea of the volume of work and the wonderfully diversified character of work that is being carried on by the A. M. A., one must go to Chicago and spend several days in the splendid plant of the Association in that city.

The American Medical Association is a great institution and is doing a great work for medicine and for humanity. The organization as an organization may have made some mistakes; its officers may have, at some rare intervals, gotten off on the wrong track with respect to certain policies; the Association may have, once in a great while, failed to take advantage of opportunities that offered something worth while; but when the books are balanced it will be found that the balance is on the right side, and that the profits have been distributed evenly and fully, and that to the American medical profession, and through them to the American people and the peoples of other nations, a service has been rendered by the American Medical Association which has been in the interest of humanity and has made our world a better world.

And don't forget: the Tennessee State Medical Association is a part of the American Medical Association, has had a share in its accomplishments and has definite responsibilities by reason of the existing relations.

## PUBLIC HEALTH INSTITUTE AT MEMPHIS.

The U. S. Public Health Service held several public health institutes at various places during the year 1920, which were decidedly successful from every standpoint. The results attendant upon these institutes were so gratifying that it was decided to extend them over the entire country, as far as possible, and so it has come about that Memphis has been chosen as the place for one of the institutes, which will be held on January 23-28. As will be seen from the program, some of the most widely known physicians and sanitarians of this country will take part in the Memphis institute, discussing important subjects of great interest to the medical profession, to public health workers and all others interested in public health.

The Memphis Public Health Institute will be under the joint auspices of the Memphis and Shelby County Medical Society, the Memphis City Health Department, the University of Tennessee School of Medicine, the Tennessee State Board of Health, and the U. S. P. H. Service. The daily meetings will be held at Lindsley Hall, one of the University buildings.

It is hoped that every health officer in Tennessee will attend this institute, and that a large number of the doctors of the state will be present. All public health nurses are expected to be there, as are representatives of various groups and organizations which are concerned with the various phases of social service work as it applies to public health. It it thought that our neighboring states, Mississippi and Arkansas, whose health officers will appear on the program, will be well represented. It is quite certain that all who attend will be amply repaid in hearing a very varied list of subjects discussed by a group of experts in their fields of work.

The Committee on Arrangements of the Memphis and Shelby County Medical Society is composed of Dr. J. J. Durrett, Chairman; Dr. Marcus Haase, and Dr. R. L. Pierce, all of Memphis.

## PUBLIC HEALTH INSTITUTE AT MEMPHIS.

### January 23-28, 1922.

**Monday, January 23, 1922.**

9:00 A. M.—Gonorrhea— Dr. J. T. Geraghty, Baltimore, Md.

10:00 A. M.—The Delinquent—Dr. Rachelle S. Yarros, Chicago, Ill.

11:00 A. M.—Local Health Administration —Dr. J. J. Durrett, City Health Officer, Memphis.

1:30 P. M.—Gonorrhea—Dr. J. T. Geraghty, Baltimore, Md.

2:30 P. M.—Malaria as a Public Health Problem in the South—Surgeon L. D. Fricks, U. S. P. H. Service.

3:30 P. M.—Engineering Aspects of Malaria Control—Senior Sanitary Engineer, J. A. LaPrince, U. S. P. H. Service.

**Tuesday, January 24.**

9:00 A. M.—Gonorrhea—Dr. J. T. Geraghty, Baltimore, Md.

10:00 A. M.—The Delinquent—Dr. Rachelle S. Yarros, Chicago, Ill.

11:00 A. M.—A Subject of His Own Selection—Dr. Olin West, State Health Officer, Tennessee.

1:30 P. M.—Gonorrhea—Dr. J. T. Geraghty, Baltimore, Md.

2:30 P. M.—Malaria Mosquito Control in Memphis—Sanitary Engineer, W. G. Stromquist, City Health Department, Memphis.

3:30 P. M.—Co-operative Malaria Control in Tennessee—Associate Sanitary Engineer, A. W. Fuchs, U. S. P. H. S.

**Wednesday, January 25.**

9:00 A. M.—Gonorrhea—Dr. J. T. Geraghty, Baltimore, Md.

10:00 A. M.—The Delinquent—Dr. Rachelle S. Yarros, Chicago, Ill.

11:00 A. M.—Hospitalization of Tuberculosis—Dr. J. A. Price, Supt., Oakville Sanitarium, Memphis.

1:30 P. M.—Gonorrhea—Dr. J. T. Geraghty, Baltimore, Md.

2:30 P. M.—Types and Treatment of Malaria—Dr. Wm. Krauss, Director, Laboratories, Memphis.

3:30 P. M.—Railroad Malaria Control—Sanitary Engineer, H. W. Van Hovenberg, Rock Island R. R. Company.

**Thursday, January 26.**

9:00 A. M.—Syphilis—Dr. John Stokes, Rochester, Minn.

10:00 A. M.—Medical Social Work—Dr. Valeria Parker, Washington, D. C.

11:00 A. M.—Isolation—Dr. C. W. Garrison, State Health Officer, of Arkansas.

1:00 P. M.—Syphilis—Dr. John Stokes, Rochester, Minn.

2:30P. M.—Protective Social Work—Dr. Valeria Parker, Washington, D. C.

3:30 P. M.—Out-Patient Medical Relief and Communicable Disease Hospital—Dr. Marcus Haase, Memphis.

**Friday, January 27.**

9:00 A. M.—Syphilis—Dr. John Stokes, Rochester, Minn.

10:00 A. M.—The Non-Communicable Diseases—Pellagra—Dr. Jos. Goldberger, U. S. P. H. Service.

11:00 A. M.—A Subject of His Own Selection—Dr. W. S. Leathers, State Health Officer, of Mississippi.

2:30 P. M.—Protective Social Work—Dr. Valeria Parker, Washington, D. C.

3:30 P. M.—Child Hygiene—Dr. Taliaferro Clark.

**Saturday, January 28.**

9:00 A. M.—Syphilis—Dr. John H. Stokes, Rochester, Minn.

10:00 A. M.—The Non-Communicable Diseases—Pellagra—Dr. Jos. Goldberger, U. S. P. H. Service.

11:00 A. M.—Public Health Laboratory Work—Dr. Wm. Krauss, Director of Laboratories, Memphis.

1:30 P. M.—Syphilis—Dr. John H. Stokes, Rochester, Minn.

2:30 P. M.—Protective Social Work—Dr. Valeria Parker, Washington, D. C.

3:30 P. M.—Child Hygiene—Dr. Clark.

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## SMALLPOX AND VACCINATION IN RECENT MONTHS.

In his History of England, Macauley described smallpox as "the most terrible of all ministers of death." "The havoc of the plague," he continues, "was far more rapid, but the plague visited our shores only once or twice within living memory; and the smallpox was always present, filling the churchyards with corpses, tormenting with constant fears all whom it had not yet stricken, leaving on those whose lives it spared the hideous traces of its power, turning the babe into a changeling at which the mother shuddered, and making the eyes and cheeks of the betrothed maiden objects of horror to the lover." One hundred and twenty-five years have elapsed since the first vaccination performed by Edward Jenner in 1796. Persons living today, when the great menace that once conquered even America is no longer feared, can scarcely appreciate the true significance of the tribute which Thomas Jefferson paid to Jenner in these words: "You have erased from the calendar of human afflictions one of its greatest. Yours is the comfortable reflection that mankind can never forget that you have lived; future nations will know by history only that the loathsome smallpox has existed, and by you has been extirpated." In the light of these comments, its seems almost incredible that the U. S. Public Health Service should find it possible to report more than 16,000 cases of smallpox in eight states alone in which the histories were furnished in 1920;

while, from information supplied by only seven states, more than 18,000 cases have been reported with history during the first six months of the present year. In Minnesota, for example, 8,238 of these smallpox cases were actually reported. The real lesson, however, is to be found in the statistics of vaccination for this formidable array of patients. More than two thirds of the entire 34,000 afflicted had never been successfully vaccinated. About one twentieth of them had been vaccinated more than seven years before the attack; and, of the remainder, the histories were in most cases uncertain with reference to their vaccination status, or were not obtained. Only two per cent of the patients were actually reported to have been vaccinated within seven years prior to the attack. Again the lesson to the public is clear and imperative—and there is little left for the consolation of the anti-vaccination cult, which is doubtless responsible directly or indirectly for some of this unnecessary suffering.—Jour. A. M. A., Dec. 3, 1921.

Had all of these cases of smallpox which occurred in Tennessee in 1920 been reported to the U. S. Public Health Service, their total published figures would have gone very considerably above 16,000. Smallpox is right now present in many of our counties, and the coming winter will bring the same old story of hundreds of cases of smallpox in unvaccinated persons.

How many of the children in families who look to you for medical care and advice have you vaccinated, doctor?

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## RESOLUTIONS ON THE DEATH OF DR. BROYLES.

Death has invaded our ranks and removed from our midst one of our honored members, Dr. Charles J. Broyles, one of the charter members of the Johnson City and Washington County Medical Society, passed away at his home on November 28, 1921. He had been in feeble health for several months, but had continued to go about his work resolutely, quietly and cheerfully, as was his habit, and no one, not even his family or professional friends seemed to realize that his end was so near. We pause in our deliberations to pay tribute of respect to our departed friend and brother.

Dr. Broyles' passing removes from our association a notable figure. He was held in high esteem by the organized medical profession, having been chosen to serve in positions of honor and trust, notably as President of the Tennessee State Medical Association, President of the East Tennessee Medical Society and President of the Johnson City and Washington County Medical Societies, all of which positions he held with dignity, courtesy and efficiency.

As a citizen he was progressive and public spirited, always ready to give liberally of time, means and influence to promote the best interest of the community in which he lived. As a husband and father his life of interest and devotion to those he loved best was beyond all praise. Finally, he was a believer in the Fatherhood of God, Brotherhood of Man, and his life was an exemplification of that belief.

Now, therefore, be it resolved by the Johnson City and Washington County Medical Society in regular meeting assembled, That we deeply deplore and mourn the removal of our departed friend and brother from his field of labor and usefulness, and that we extend our heartfelt sympathy to his family in this their great bereavement and loss.

Resolved further, That this resolution be made a part of the records of this society, that a copy be furnished to the bereaved family, and a copy be sent to the Journal of the Tennessee State Medical Association with a request that it be published.

Signed:

W. J. MATTHEWS.
J. G. MOSS.
E. T. WEST.
Committee.

December, 5, 1921, Johnson City, Tenn.

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## DOCTOR L. D. J. ENSOR.

Dr. L. D. J. Ensor, for many years a member of the Putnam County Medical Society and the Tennessee State Medical Association, died at his home in Cookeville, on November 18, 1921. Dr. Ensor had served his local society as president and as secretary, and was widely known and respected by his fellow in the profession of the upper Cumberland section.

## CONFERENCE OF STATE SECRETARIES WITH A. M. A.

A conference of the secretaries of the various state medical associations of the country with the officers of the A. M. A., was held in Chicago on November 11-12. This conference was attended by Dr. Hubert Worke, President; Dr. G. E. DeSchweinitz, President-elect; and nearly the entire personnel of the Board of Trustees and the "official family" of the A. M. A., and by state secretaries from Maine to California and from Washington state to South Carolina.

Dr. Work presided at the opening session of the conference and then resigned the chair to Dr. de Schweinitz, than whom there is no more gracious presiding officer or gentleman in the American profession. An inspiring address on "Past, Present and Future Policies of the American Medical Association" by Dr. Frank Billings was one of the outstanding features of the two days program. In this address, as in others of his utterances during the conference, Dr. Billings spoke as the representative of the Board of Trustees of the A. M. A., and showed how the great national society has stood and worked, and is still standing and still working for the welfare of mankind in general, and for the cause of medicine in these United States. None who heard Dr. Billings could fail to be impressed with the story that he unfolded of the careful, thorough, conscientious and devoted service that has been rendered by the body for which he spoke.

"Cooperation Between the Constituent and Component Branches if the American Medical Association: In Organization," by Dr. A. R. Craig, Secretary; "In Medical Education and Hospitals," by Dr. N. P. Colwell, Secretary of the Council on Medical Education and Hospitals;" "In Legislation," by Dr. F. R. Green, Secretary of the Council on Health and Public Instruction, occupied the afternoon session of the first day. The magnitude of the work and the wonderful diversity of the activities of the A. M. A. were made apparent to the members of the conference as they heard these officers discuss the many great problems with which they are confronted and with which the A. M. A. is dealing in every-day work.

While the state secretaries present participated in all the subjects considered on the first day of the conference, they had a regular field day on Saturday, the entire program being theirs. It was interesting and profitable to all concerned to hear the very frank discussion by these men from so many states of the many matters about which they talked. Public health and the state society, public health and the medical profession, medical organization, medical education, medical legislation, hospitals, study courses, the county society and the state society, the state society and the A. M. A., study courses in the county society, the councilor's place and work, medical service in the country, group medicine, the pay clinic—all these and many other subjects were discussed.

The state secretaries got a great deal of helpful information and a great deal of real inspiration from this conference and will be better able to serve their respective societies by reason of attendance upon it. They also tried to present to the officers of the national organization somewhat of the view-points of the state organizations concerning the questions of the time. Their statements were graciously and attentively received. We came away from Chicago convinced that in all good time the doubts and fears that are perplexing will be cleared away; that all that is right will prevail; that all that is wrong will fail; that the ancient praiseworthy ideals of medicine, yet maintain a tenacious hold on the hearts and minds of American doctors; that the scheme of medical organizations in these United States is the right scheme and that the men at the helm are earnest, devoted and efficient.

A very pleasing feature of the conference was a dinner at which Dr. Geo. H. Simmons, the very able manager of the A. M. A. and the very efficient editor of its great journal, "did the honors." Dr. de Schweinitz, the President -Elect, was the speaker of the evening and made a most pleasing address.

## THE SOUTHERN MEDICAL ASSOCIATION.

The meeting of the Southern Medical Association at Hot Springs, under the presidency of Dr. J. L. Crook, of Jackson, was splendidly attended, and full of interest. This society, the second largest in the country, has grown steadily in numbers and in work since its organization, until it now wields a powerful influence in professional and scientific matters throughout the outh.

throughout the South. Tennessee doctors played a prominent part in its organization and have occupied prominent places in its directorship. The president and the chairman of the Section on Medicine during the last year were both Tennesseans—Dr. Jere L. Crook and Dr. W. H. Witt, and both acquitted themselves with much credit at the Hot Springs meeting.

Dr. Seale Harris, for all these years secretary of the Association and editor of its Journal, presented his resignation at Hot Springs, and was promptly elected president for this year. This action upon the part of the members was, of course, taken to give expression to their appreciation for the splendid service that Seale Harris has rendered.

Dr. M. Y. Dabney, of Augusta, Ga., is now the editor of the Journal of the Southern Medical Association, while Mr. C. P. Loranz has added to his duties as Business Manager those devolving upon the secretary.

## RADIUM IN DERMATOLOGY.

Radium is proving a most valuable addition to the equipment of the dermatologist. The results upon basal-celled epithelioma are especially good. The half-strength ten milligram radium plaque is the best apparatus for these cases. Radium is especially useful in working about the eyes and eye-lids. Endothelioma of the face responds quickly to radium therapy.

Epithelioma of the lip is especially adapted for radium treatment, and very brilliant results have been obtained in cases where it has been employed.

The author has had satisfactory results in treating such conditions as plantar warts, keloids, acne rosacea, intractable pruritis, keratosis senilis, psoriasis, lichen planus, lupus and tubercular skin conditions.

It is the treatment of choice in angioma, lymphangioma, leucoplakia, and eczema of the lips. Radium cures cases of sycosis when all other usual methods fail.

The author reports eight cases of lupus erythematosis of the mucous membrane cured with radium.

He describes a different technique for the treatment of extensive hypertrichosis with radium, and reports his successful results in all cases. The cosmetic result being superior to any other known method.

He has treated successfully cases of epithelioma and papilloma of the cornea, vernal catarrh and other eye conditions which were referred by iculists.—C. J. Broeman in December issue of Ohio State Medical Journal.

## NAMES OMITTED.

The names of Dr. K. S. Howlett, Franklin, and Dr. S. F. Oden, Brentwood, were omitted from the list of members printed in the Juornal for November. These two names were "lost" from the Journal "make-up" before going to press. Drs. Howlett and Oden have been members of the Williamson County Medical Society for many years.

The whole list as it appeared in the Journal is being checked to discover whether or not other names were omitted, and if any such are found, they will be printed in January.

## BOOK REVIEWS.

HISTORY OF MEDICINE.—With Medical Chronology, Suggestions for Study and Bibliographic Data. By Fielding H. Garrison, M. D., Lt.-Col. M. C., U. S. Army, Surgeon General's Office, Washington. Third Edition, revised and enlarged. W. B. Saunders Company, Philadelphia. Cloth $9.00

It is a reproach to the medical schools of this nation that its graduates are permitted to go out into the profession in more or less total ignorance of the history of medicine. And it is even more of a reproach to the profession that the bulk of its members continue in ignorance of medical history. Col. Garrison, in writing the "History of Medicine" has done a great service which has been poorly appreciated. His story of the development of medical science should be read and studied by every man who believes himself worthy of a place in the profession of medicine. It is a well written work and wonderfully complete, when the immensity of the task of writing a history of medicine is considered.

THE SPLEEN AND SOME OF ITS DISEASES. —By Sir Berkeley Moynihan, of Leeds, England. 129 pages, with 13 full-page diagrams. W. B. Saunders Co., Philagelphia. Cloth $5.00

This is a Bradshaw lecture of the Royal College of Surgeons of England, delivered by Sir Berkeley Moynihan in December, 1920, and is a most splendid presentation of a surgical subject which has claimed a larger and larger share of the attention of the profession with each passing year.

SURGICAL ANATOMY.—By William Francis Campbell, M. D., Surgeon-in-Chief at Trinity Hospital, New York. Third Edition, revised. 681 pages with 325 original illustrations. W. B. Saunders & Company, Philadelphia. Cloth $6.00

"No teacher can impart, or student assimilate, all the details of anatomy. The facts must be sifted, their comparative values fixed, and the reason for their acquisition demonstrated by directing attention to the practical problems with which they are associated. A fact that can be utilized is a fact that will survive." On that basis Dr. Campbell has builded his work on surgical anatomy and has thereby produced a book that is extremely practical and, therefore, extremely helpful. The essential things are brought out without unnecessary and tiresome detail and practical application of anatomical facts of importance is made for the reader. The illustrations are numerous and helpful, most of them are more accurate in detail than such illustrations are generally found to be. The work of revision for this new third edition has been well done.

DISEASES OF THE SKIN.—By Henry R. Stelwagon, M. D., Philadelphia. Ninth Edition, revised with the assistance of Henry K. Gaskill, M. D., Attending Dermatologist to the Philadelphia General Hospital. 1313 pages with 401 illustrations. W. B. Saunders & Company, Philadelphia. Cloth $10.00

Dr. Stelwagon, one of the greatest of all dermatologists did not live to complete the revision of his text book on Diseases of the Skin, but left the task partly done, in the hands of Dr. Gaskill, who has succeeded splendidly in making this ninth edition of Stelwagon just what we believe he would have had it to be. One of the most valuable features of this work, from the first to the last edition, has been that it has contained so many references and that they have been incorportated in the body of the book where they can be instantly found. Many of these references carry with them comprehensive statements by the author which are virtually complete abstracts of the original articles. There is no more complete work on diseases of the skin than this great volume.

COLLECTED PAPERS OF THE MAYO CLINIC. Vol. XII, 1920. W. B. Saunders Company, Philadelphia. Cloth $12.00

This volume of the Mayo Clinic papers must be seen to be appreciated. It covers a wonderfully diversified field. Among the many papers presented, one is on "Surgical Treatment of Malignant Tumors of the Bladder," by Judd and Sistrunk; another on "Tuberculous Peritonitis," by C. H. Mayo, who also has a paper on "Gastric and Duodenal Ulcers"; while Stacy presents a study of "Radium Treatment in Six Hundred Cases of Menorrhagia." "Abscess of the Lung," by Lemon, "Congenital Torticollis," by Meyerding, "Abdominal Hernia," by Masson, "Early Diagnosis of Pituitary Tumor," by Benedict, "The Applications and Limitations of the Arsphenamins,' by J. H. Stokes, "Epidermic Infections Jaundice," by Stokes, Ruedemann and Lemon, "Tuberculosis of the Knee Joint in Children," by Henderson, may be mentioned simply to indicate the diversity of subjects covered. This volume is of especial interest, too, by reason of the fact that it contains five of E. C. Rosenow's papers on his "Studies in Influenza and Pneumonia."

PRINCIPLES OF MEDICAL TREATMENT.—By George Cheever Shatuck, M. D., Howard Medical School, with contributions by John B. Hawes, M. D., Edwin H. Place, M. D., Gerald Blake, M. D., B. H. Ragle, M. D., and H. M. Thomas, Jr., M. D. W. M. Leonard, Inc., Publishers, Boston.

It is manifestly impossible for a book of only 150 printed pages to go very much into detailed discussions concerning the principles of treatment nor of the exceedingly numerous methods of treatment for very many various conditions. But it is truly remarkable that Dr. Shattuck and his collaborators have been able to put so much concerning indications, contraindications, administration, diagnosis, complications, etc., as they have put into this little book. Sound principles of treatment are outlined very concisely and very clearly for disorders of the circulatory system, nephritis, acute infectious diseases, acute infections most common in childhood, acute infections of the respiratory tract, pulmonary tuberculosis, gastro-intestinal disorders, and diabetes. One chapter deals with "Medication" and two lists are given, one of "very valuable drugs" and the other of "valuable drugs and non-medical preparations," with a very splendid synopsis of each list.

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EPHRAIM McDOWELL, "FATHER OF OVARIOTOMY" and FOUNDER OF ABDOMINAL SURGERY, with an appendix on Jane Todd Crawford by August Schachner, M. D., F. A. C. S. Louisville, Kentucky. Octavo volume of about 350 pages. Attractively printed and profusely illustrated with plates in double tone. Price $5.00. J. B. Lippincott Company, Publishers. Philadelphia and London.

Ephraim McDowell in his crude and wild but picturesque setting, amid the daring and the coarseness of the frontier, as a country doctor practicing his profession without a diploma, singly and alone, through his ovariotomy added more to the art of surgery during the short space of his career than all of the rest of the surgical world combined added in the same number of years and during the same period.

When he gave to the world his ovariotomy, he laid the cornerstone of the most wonderful domain of surgery ever known to the human mind. He placed in the diadem of the art and science of surgery its most brilliant gem and in the eons of time became the indirect emancipator of countless millions of human beings from protracted suffering and premature deaths. But after all this priceless service, he practically remains unknown and unhonored.

The story of McDowell's' life is a story of the greatest neglect to which one of the foremost heroes of medicine and benefactors of humanity has ever been exposed. The motive of the book is to call attention to this neglect and to arouse an interest in this pioneer master of abdominal surgery.

The lessons which McDowell's ovarian surgery taught are thoroughly emphasized. The author explains how abdominal surgery gradually evolved from the facts which these lessons so clearly and firmly establish and why McDowell is credited with the title of founder of abdominal surgery.

The struggle which attended the adoption of ovariotomy and which lasted for fully a half century is vividly set forth, and the persecutions to which the early defenders were subjected is of the keenest interest. It was not until 1861, or more than half a century after McDowell's first ovariotomy before a favorable word was said for it by a French professor in a French university. In England the situation was very little better as it was not until a third of a century thereafter that a London hospital could boast of a successful ovariotomy.

A fascinating review of the more important events of that interesting period and place in which he practiced is interwoven throughout the narrative. It is a reveiw of the times and contains thumb nail sketches of persons who directly or indirectly became associated with the man and his work during his own period and the period that followed.

The importance of the frontier in medicine and in the development of our national characteristics are strikingly portrayed.

The book contains the first real attempt to present a history of the heroine whose co-operation made the premier ovariotomy a possibility. This feature involved a patient and an unusual investigation that ended in the discovery of her grave in an obscure cemetery almost a century after death.

It contains an elaborate bibliography and a carefully prepared index that makes it valuable as a work of reference uponMcDowell and his time but also upon ovariotomy and the earliest efforts in abdominal surgery. It should find a place in every reference library technical or otherwise, and no surgical library is complete without this long-delayed effort upon so important and such a fundamental subject.

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# A REVIEW OF THE OPERATIVE TREATMENT OF GLAUCOMA.*

By Hilliard Wood, M. D., F. A. C. S.,
Nashville.

A casual review of the literature of glaucoma shows that some three dozen operations and modifications of operations, have been devised, performed and more or less recommended for the relief of this condition. The multiplicity of these operations proves that no one of them has been entirely satisfactory. Practically without exception, all have been directed towards the reduction of an excess of intra-ocular tension, which, according to Priestley Smith, with its causes and effects, constitutes glaucoma.

The indications and preparations for operation may be briefly discussed. In the more acute, inflammatory stages of glaucoma, some advise the use of medicinal and palliative treatment, and the postponement of operation until the inflammatory symptoms have abated. Among the medicinal remedies, first come the myotics, eserine and piocarpine, alone or combined, the effect of either being increased by the addition of a weak solution of cocaine. Massage of the eye; the sub-conjunctival injection of sodium citrate; dionin dropped in the eye; quietude; rest; purgation; and the use of anti-rheumatic remedies internally, all help to shorten the period of inflammatory exacerbation.

While it is true that operations may be more correctly and safely done after the subsidence of the inflammation, yet postponement necessitates continued suffering, and the function of the eye is progressively impaired. For these reasons it would seem that operation in inflammatory glaucoma should be done as soon as it is feasible to do it correctly. In simple glaucoma the necessity for haste is not so great, and time may be taken to try the effects of non-operative treatment. In doing this, frequent measurements of the central vision, the accommodation, the field, and the intra-ocular tension, as determined by the tonometer, should be recorded. Any evidence of the failure of the medicinal treatment calls for operation. Moreover, where one eye has been lost from glaucoma, operation on the second eye, if there is any increase of tension, should not be long delayed.

In operating on the more acute, inflammatory cases, general anesthesia is often preferable, as cocaine may not be absorbed sufficiently to relieve the pain and to obtain that quietude of the patient so essential to a correct technic. This is especially true where an iridectomy is to be done. In the less inflammatory cases, cocaine is sufficient and is best combined with adrenalin, which will increase the anesthesia and lessen the bleeding. To produce quietude, local anesthesia may often be advantageously preceded by a hypodermic of morphine and scopolamine; but the scopolamine, in those who have an idiosyncrasy to it, may have the reverse effect, and produce so much excitement that operation will have to be postponed until the following day. I have once had this experience. Sub-conjunctival injections of cocaine have the disadvantage of producing an edema, which interferes with the technic.

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*Read before section on Ophthalmology and Otolaryngalogy at annual meeting of Tennessee State Medical Association at Chattanooga. This paper, with others, was not delivered to the Journal by the official stenographer until recently.—Ed.

Of the numerous operations for glaucoma, only four will be here mentioned: viz., iridectomy, the La Grange operation, the Elliot operation, and iridotasis as done by Borthen.

It would be difficult to say anything new about iridectomy. Since 1856 it has been the recognized operation for the relief of glaucoma. And yet there were many cases of glaucoma which were not relieved by iridectomy. Until early in the present century it was the only known, dependable operation, so that its merits were rather relative than absolute. It is indicated and is successful in proportion to the acuteness and inflammatory character of the glaucoma; and, conversely, it is less successful in the more chronic cases, being least successful in simple, chronic, non-inflammatory glaucoma.

Technically speaking, glaucoma iridectomy is one of the most difficult operations in ophthalmic surgery to do correctly, and this difficulty is increased when, as acute inflammatory glaucoma, the anterior chamber is reduced to a minimum. Indeed, the anterior chamber may be so shallow that a correct technic becomes impossible. In such cases the iridectomy should be postponed while palliative measures are employed. In simple, chronic glaucoma, iridectomy does less good, and, in view of other operations more adapted to these cases, it is doubtful whether it should be employed in glaucoma simplex On the other hand, iridectomy is not so likely to be followed by late infections as are some of its substitutes. It is more than probable that iridectomy will always remain a recognized operation for glaucoma, but its use will be more and more restricted to acute, inflammatory cases.

Recognizing that the continued escape of aqueous humor was essential to the relief of excessive intra-ocular pressure, both La Grange and Elliot devised operations designed to produce a filtration scar; La Grange, by button-holing the sclera; and Elliot, by removing with the trephine a disc from the corneo-scleral junction.

The La Grange operation, or irido-sclerotomy, introduced in 1906, has given good results, but its performance involves considerable traumatism and, like other similar operations, is not free from the possibility of late infections. Nevertheless, for the less inflammatory forms of glaucoma, it would seem to be preferable to iridectomy

The Elliot operation, or corneo-scleral trephining, introduced in 1909, has been extensively done, both in Europe and in America. The exact technic of its performance has been detailed with great care by Col. Elliot in the several editions of his work on glaucoma, and was demonstrated by him in many hospitals in this country during his visit here in 1913. Originally intended more for glaucoma simplex, it has been used in various forms of glaucoma, including the inflammatory types. If Elliot's technic is carefully followed, it is not a difficult operation; it can practically always be done under local anesthesia, and ininvolves a minimum of trauma.

In making the conjunctival flap, the lower angles of the incision should not be less than 4 mm. from the corneal limbus, else after healing the filtering aqueous may be retained as a bleb under the conjunctival flap, and absorption prevented by a water-tight cicatrix all around. In my hands, the best instrument for splitting the cornea has been a dull-pointed keratome; and I have found the Von Hippel trephine, as modified by Fox, preferable to the hand trephines. When the trephine enters the anterior chamber and is then removed, it will usually be found that the button is left attached by its upper edge, as by a hinge, and the iris bulged into the trephine opening. Just here it is well to leave the button of corneo-sclera alone until the iridectomy is completed, and then remove the button. If the button is removed first, it may be found that the iris has now receded into the aqueous chamber, and to grasp it may be difficult if the trephine opening is small, or in case of bleeding. After completing the iridectomy, to return the iris to the aqueous chamber, the conjunctival flap should be replaced, and through this the wound stroked with a spatula. Replacement of the iris will follow immediately. I have always inserted a couple of sutures to retain the conjunctival flap in place.

The advantages of this operation, as they have impressed themselves upon me, are: that it can be employed in any type of glaucoma; that it is superior to iridectomy in the chronic forms; that it is not a very difficult operation to perform; that it involves the minimum of confinement to patients during the after-treatment; and that the average result in reducing tension and preserving vision is good.

Against this operation it may be said that it is at times followed by iritis, which may be of low grade, described by Elliot as "quiet iritis;" or the inflammation may develop into a rather severe irido-cyclitis. I have seen several cases in which the above complications occurred, in which I did the peripheral pin-hole iridectomy, as recommended by Elliot. Some four years ago I substituted a complete iridectomy for the peripheral pin-hole iridectomy and so far the complete iridectomy has not been followed by any iritis or irido-cyclitis. As this seems to harmonize with the experience of others, I would suggest that the iridectomy be made complete as a matter of routine.

Iridotasis, as done by Borthen in 1911, has, I believe, attracted less attention than it deserves. It produces a sub-conjunctival prolapse of the iris. A conjunctival flap is turned down, as in the Elliot operation. When the limbus is exposed, a keratome is introduced 1 mm. behind the corneo-scleral junction, making a linear wound 4 mm. long. Through this wound iris forceps are introduced, and grasp the iris at the upper pupillary margin. A knuckle of iris is drawn out through the incision in such a way that the iris is everted, the posterior surface becoming anterior, the iris being incarcerated in the incision with a small bead projecting externally. The conjunctival flap is replaced and held by two silk sutures, as in the Elliot operation.

As directed by Borthen, it is advisable to have the sphincter pupillae paralyzed with atropine before operating; otherwise the iris may retract into the aqueous chamber. For this reason I have adopted the plan of instilling into the eye a solution of atropine at 9 A. M., 12 noon, and 3 P. M., and doing an iridotasis at 4 P. M.

In my earlier experience with iridotasis, in two cases I had the iris to retract into the aqueous chamber, necessitating its replacement the day following the original operation. I have had no retraction of iris into the aqueous since I began to precede the operation by atropine, to make the linear incision as small as one can operate through, say 3 or 4 mm. and to draw a knuckle of iris well through and slightly beyond the incision.

I have now done iridotasis on eighteen eyes. The complications consist of the two retractions of the iris, above mentioned, and one case of choroidal detachment. There has been no iritis and not late infection, so far as I have learned. The immediate and late results, both as to tension and vision, have in general been good. My experience with it has been in the more chronic forms of inflammatory glaucoma, and in glaucoma simplex. I have had no experience with it in acute inflammatory glaucoma.

In several cases of bi-lateral glaucoma, I have, at the same sitting, trephined one eye, and done iridotasis on the other eye. In general, it appears from my tonometric measurements, taken both before and after operating, that trephining lowers tension rather more than iridotasis, in one case producing hypotony, from which the eye was ultimately lost.

In conclusion, there are a few general observations bearing upon glaucoma work, which, with your permission, I beg leave to present. In handling glaucoma cases, the first point is a correct diagnosis. In the earlier stages of incipient glaucoma this is sometimes difficult. In these cases, as Elliot observes, correct measurements of the central vision, the field of vision, and the intra-ocular tension, as determined by the tonometer, are our main reliance. To these may be added, in some cases, the undue recession of the near point. Such measurements should be recorded from time to time, and a comparison of the above measurements taken at different times will show us which way the disease is tending. In my opinion a correct and early diagnosis is most important as rendering possible an early operation; for, in my experience, nothing is more striking than the fact that my best operative results have been in cases where the operation, of whatever kind, was done early; and my bad results have been in old cases where degeneration was well advanced. It may be a question in some cases whether we should adopt the operative or non-operative treatment, but in my mind there is no question but that in any given case an early operation will give better results than a late operation. In my own cases, the good results have seemingly been due more to an early operation than to the particular operation performed. Late operations, performed on eyes where degenerative changes are well advanced, are those in which we get most of our complications, and especially is this true of intra-ocular hemorrhage, which, in two of my cases, after seemingly correct operations on old, glaucomatous eyes, necessitated enucleation.

Too much stress cannot be placed on the importance of keeping full and correct record of all measurements, including the vision, the field, and the tension, as shown by the tonometer. These should include full data taken before operation, the details of the operation, and the measurements taken at intervals after the operation and continued as long as the patient is accessible. Without such definite information, general impressions are prone to be misleading as to the relative value of different lines of treatment.

Against late infections it has been suggested that a thick conjunctival flap offers the best protection. In making this flap, Elliot approaches more and more to the sclera, so that by the time he reaches the point where the trephine opening is to be made, he is fully down against the sclera, thus having in front both the conjunctiva and sub-conjunctival tissue.

As the conjunctiva in the aged is often friable, it may tear when the flap is being formed. In such cases, and when the flap is buttonholed, it is well to convert the flap into the sliding flap after the method of Webster Fox.

I cannot close this paper without saying that in my opinion, in reviving our interest, stimulating our hopes and extending our knowledge of glaucoma, the world owes much to the patient labor, skill and genius of Lieut.-Col. Robert Henry Elliot.

# THE PRE-OPERATIVE AND POST-OPERATIVE MANAGEMENT OF ABDOMINAL OPERATIONS.*

By Eugene J. Johnson, M. D., Memphis.

Successful results in the average run of abdominal operations are dependent upon a number of factors, and the pre-operative and post-operative management occupies a position that is hardly secondary in importance to the actual operative procedure. It is hardly necessary to emphasize the fact that correct diagnosis, faultless technique and seasoned judgment on the part of the surgeon are of paramount importance and what I wish to bring out in this paper are a few features about the management of abdominal cases that have stood me in good stead and have been the means of carrying desperately sick patients over the rocky road which some of them must necessarily pass over, and, also, have served to make the convalescence of the less sick more free from pain and discomfort. Much has been said and written along this line, and in late years there has been a text book standardization, which has been carried out almost verbatim in a great many hospitals, but in my own experience this standardization has not seemed to fit every case, and, for this reason, I have deviated from the rule and have developed a few measures that in my work have proven more satisfactory.

The routine preparation of abdominal cases as is carried out by most surgeons is employed in our work with the exception of purgation, and it is on this feature of the management that I wish to lay stress. During the past twelve or fifteen years it has been my lot to operate on a large number of emergency abdominal conditions; such as acute surgical abdomen, gun-shot wounds and trauma, in which no purgation had been given, and I have been surprised to note how free from nausea, vomiting and tympanites a large number of the patients have been. By watching these cases along, and noting the constancy of the absence of the symptoms referred to, it occurred to me that there was some feature or some influence for good which I was not seeing in the well prepared case of election. In studying out the problem, the only difference I could see in the two types of cases was that one had been purged prior to operation, and the other had not. This led me to the tentative plan of not purging any case prior to operation ,and I was so pleasantly surprised over the absence of nausea, vomiting and gaseous distension with pain in these cases not purged that after thorough trial I have adopted this plan as routine, and have a simple enema only given the night before and the morning of the operation. The rationale of this can easily be accepted when one considers that purgation of the kind usually administered converts a semi-solid and solid fecal stream into one that is liquid, and usually purgation is not complete at the time the patient goes to the table; therefore, the alimentary tract contains toxic products in liquid form which are far more readily absorbed than when in solid form, and, if the custom of giving an enema on the third day is followed, the patient is being poisoned by toxic material, which we have attempted to eliminate, but have placed in a more absorbable form without any chance of elimination for three days. Furthermore, the active peristalsis and gas formation excited by purgation are still present at the time of operation, and when the manipulation of the hollow viscera that is necessary in most abdominal cases is added, we have a patient suffering from increased and violent peristalsis, excessive gas formation and increased absorption of toxic material with no chance of elimination for three days, all acting in a vicious circle. In these patients who have been purged prior to operation it is quite common to see a rise of temperature to 100 or 101 the day after operation, and a return to normal on the afternoon of the third day or morning of the fourth day following a laxative or enema. In the cases not purged prior to operation, it is the rule to observe the absence of the disagreeable symptoms mentioned and the temperature remains normal.

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*Read at the Annual Meeting of the Tennessee State Medical Association at Nashville, April, 1121.

In regard to the administration of purgatives following operation, I wish to advise most strongly against it, and even go further by saying that under no circumstances should a purgative be given in the first post-operative week. A certain percentage of cases of both inflammatory and non-inflammatory types will necessarily have flatulence in varying degrees, but I have learned in the hard school of experience that purgation only adds fuel to the flames, and the likelihood of thrombosis and paresis is so great and so frequent that it is a standing order on the charts of all of my patients for the guidance of internes and nurses not to give any purgation whatsoever unless specially ordered. In cases where the tympanites is very great I have found that any attempt to lessen the condition hurriedly by purgation, or other drugs only increases it, and makes the patient sicker and more uncomfortable, and for this reason I never resort to the use of pituitrin, eserin, salicylate or other carminatives. Gastric lavage and low enemata, along with insertion of the colon tube, have given me very satisfactory results, and with the exception of these measures, I do nothing to promote expulsion of the gaseous accumulation. Tim and again I have seen cases with excessive distension, with or without peritonitis, when left alone gradually expel the gaseous accumulation, and the bowels move naturally. In cases of localized peritonitis following such conditions as suppurative appendicitis, it is quite usual to see them go for five to eight days without an evacuation of the bowel with no great discomfort. The return to normal bowel function is gradual and free from the distressing and frequently grave consequences that follow purgation. The management of hemorrhage, shock, etc., are along the same plan as used by other men, and when the occasion demands, we find the use of normal saline intravenously, eight per cent solution of glucose by hypodermoelysis and proctoclysis and blood transfusion by the citrate method verey beneficial.

In peritonitis we employ morphine to the point of holding the bowel in a splint. The Fowler position, Murphy drip of normal saline, eight per cent of glucose and solution of sodium bicarbonate are routine measures.

For renal deficiency, manifested by complete or partial suppression of urine, we have been using the intravenous injection of Fischer's solution, with most gratifying results. This solution being made up of sodium chloride 14 grams, sodium carbonate 4 grams to 1000 cc. of distilled water is practically isotonic with the blood, and in our experience has proven very beneficial in this condition.

For a number of years we have let our cases out of bed much earlier than formerly, and find that their convalescence is much quicker. The clean cases will average being out of bed on the eighth day.

In conclusion I wish to again emphasize the point that purgation has no place in the management of surgical abdominal conditions, either pre-operative or post-operative, and this applies to the case of election as well as the acute surgical abdomen.

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## DSICUSSION.

DR. MICHAEL CAMPBELL, Nashville: Being not a surgeon, I therefore am scarcely competent to discuss the doctor's paper altogether, but I want to say that I highly approve the rational position he takes in the paper. It never did seem to me it was rational to prostrate a patient by purgation and as the doctor says liquefy the feces and produce distension of the abdomen and stomach with gas and bring about a condition of nausea already before the patient becomes nauseated with gas from the anaesthetic.

I do not think it is well to give a high enema, that is, introducing an enema into the colon which produces disturbance of the bowels and to a lesser degree bring about the undesirable condition that he says is brought about by purgation. I see no reason why an enema which simply empties the rectum will not be sufficient.

DR. W. K. SHEDDAN, Columbia: If this paper of Dr. Johnson's had been read thirty-five years ago some of the members of the medical profession at that time would have said that its author should be headed for the insane asylum.

From 1882 and 1884 up to 1894 the teaching of nearly all abdominal surgeons of that day was to clean out the intestinal tract. I remember it was in this city, if not a year later in the city of Detroit, when Nicholas Senu, of Chicago, one of the greatest surgeons on the American continent, made the statement in a meeting of the Surgical Section of the American Medical Association that the bowel tube was 26 feet long, and the surgeon who did not take advantage of it as a drainage tube was neglecting his opportunities.

In 1894 during my term of service with Dr. Joseph Price, of Philadelphia, in his private hospital, and watching him work, every case at that time was purged. His results as I saw them were as good as I ever saw them before or since, if not better.

We hear a great deal about the general practitioner and internist changing his course, changing his ideas, losing his head as to the method to pursue, but the surgeons are changing their method of procedure about as often as the moon changes. I saw the work of Price, I saw the work of Baldy, and of Kelly, and I saw the work of Ashton, and in those days it was the universal practice as a preoperative measure to purge the patient freely, and yet, as I have said, in the hands of these men the results were seemingly as good as we see today when we consider the character of surgery those men did. It was much more desperate surgery. More chronic surgical conditions of the abdomen showed up at that time, with large tumors, fibroid tumors and large cysts, hence the surgery of those days was much more desperate. I remember seeing Dr. Price remove a fibroid tumor that weighed fifty pounds, taking it out with almost the entire sigmoid. The patient had been purged previously. That patient went along with as little discomfort as the ordinary patient does today. In his particular work at that time opium or morphin or any of the derivatives of opium were tabooed. Dr. Price made the statement that there was not a dose of morphin in his house. In the year or more I was there I never saw a dose given, yet years before that Alonzo Clark had been treating all cases of general peritonitis by narcotizing the patients, and his results were as good as those of Dr. Price. We are coming back to the more general use of opium in these conditions. At that time Dr. Price banished opiates, he withheld liquids, and yet his results were as good as any I have seen since except as regards the discomforts of the patient.

Recently, not only in surgical conditions but in any acute infectious conditions we recognize the importance of supplying the patient with a liberal supply of liquid if the stomach can tolerate it. If we can not introduce it by the bowel we resort to intravenous injection or to hypodermoclysis. The use of liquids is a necessity, and I am sure in general medicine they will meet an indication that nothing else will. The use of the Fisher solution certainly meets a valuable indication in surgical cases often and many conditions that come up in general practice. We find the necessity for that frequently when we give our our patients liberal supplies of liquids for before the condition that demands it comes up.

DR. EUGENE J. JOHNSON, Memphis (closing): I wish to thank the gentlemen very sincerely for their discussion of my paper. The point of the paper was based largely upon personal observation coupled with the experiences of other men. We have recognized this fact, that in giving castor oil the night before operation, instead of giving fluids and maintaining them in there, the patient is rendered sick, the gastrointestinal tube is full of gas, and the patient is made uncomfortable. He is much depressed, and goes to the operating table feeling very much distressed.

With reference to the Fisher solution given intravenously in cases of nephritis, just a few days ago I had the opportunity of being called in to do a Cesarean section on a woman who had convulsions from puerperal eclampsia. She had 75 per cent albumin in her urine. She told me that she had submitted her urine to a microscopist and bacteriologist of the Baptist Hospital. She stated that the bladder was catheterized twelve hours before I saw her, and that she had no urine in the bladder. This woman had such edema that her eyes were partially closed and she looked as though she was moribund. She was seven and a half months advanced in pregnancy. We did a quick Caesarean section. After completing the Caesarean section I opened a vein, removed twelve ounces of blood, which brought down the pulse very materially. I had my intravenous solution ready, about a quart, and gave her in the same vein a quart of Fisher's solution. The woman did not have another convulsion after the operation. In twenty-four hours she gave up twenty-seven ounces of urine. I saw her last evening before leaving Memphis and she was rational, and temperature was 100, and pulse 110. She was drinking nib and expressed a fondness for it. We gave directions that she be given more nib.

# REPORT OF A CASE OF IMPACTED URETHRAL CALCULUS CAUSING EXTRAVASATION OF URINE.

By John E. Hall, M. D., Attending Urologist, and Milton Tharp, M. D., Adjunct Attending Urologist, Nashville City Hospital, Nashville, Tenn.

Urethral calculus causing complete retention, rupture of the urethra and extravasation of urine is relatively a rare condition, therefore, we are reporting a case which recently occurred on our service at the Nashville City Hospital.

W. S., Age 15 years, Negro boy, Spring Hill, Tenn., was admitted to the Urological Service on the morning of October 30th, 1921. We saw him within an hour after his admission, but were unable to get any history from the boy himself, as he was in a comatose condition. His grandmother, who came with him to the hospital, stated that the boy had been subject to "gravel" all his life and had had a small stone taken from the urethra by a doctor when he was about six years of age.

For six days prior to admission he had been troubled by straining and difficulty in voiding his urine. On October 28th, two days before admission to the hospital, in trying to pass his urine "something gave way, and he began to swell up."

On examination we found the scrotum and penis enormous in size, with blisters covering the most dependent portion of the scrotum and gangrene beginning to manifest itself in that region. On palpation these gangrenous areas gave forth a crackling, crepitant sound. Realizing that we were dealing with a case of extravasation of urine due to rupture of the urethra, we had him taken to the operating room for immediate operation. On introducing a small grooved metal sound into the urethra, as a guide for external urethrotomy, an obstruction was met in the region of the deep urethra which gave forth a grating sound, but after slight manipulation the sound passed on into the bladder. A median incision was made in the perineum, cutting down on the grooved sound. This was followed by a gush of foul smelling pus.

The entire perineum was honey-combed with pus pockets, and the posterior urethra had sloughed away. On further digital examination, a calculus, almost round in shape and about the size of a small marble, was found in this region. Lateral incisions were made down the scrotum and large quantities of purulent material evacuated. The tunica vaginalis and the left testicle had entirely sloughed away. There was direct communication between the perineal and scrotal incisions. These cavities were irrigated with very hot 1-2000 bichloride of mercury solution and left wide open for drainage. Orders were issued that the hot bichloride irrigations should be given three times daily.

For three or four days following the operation, the boy lay in a coma. In the meantime, the whole of the scrotum had become gangrenous, with the line of demarkation forming at the extreme upper borders. The whole mass sloughed away about the sixth day, leaving the right testicle and cord bare. The surface involved was dressed twice daily with gauze saturated in an emulsion of ten per cent iodoform in glycerine. The wound granulated rapidly, and at the end of ten days a catheter was introduced through the urethra into the bladder and tied in. This was left in place for two weeks, at the end of which time the boy insisted on going home. Granulations, together with contractions on the edges of the wound, were such that at the time of leaving the hospital on November 26th, there was comparatively little raw surface exposed. As he was an out-of-town patient, we instructed him to have his family physician pass sounds on him about once a week, on account of a perineal fistula which had not closed. If this is done the fistula should close within a short time and, with the exception of being minus the scrotum and left testicle, his physical condition should be as good as it was prior to the descent of the calculus.

## CAESARIAN SECTION.*

By Geo. R. McSwain, M. D., Paris.

The patient in the case here reported, of a highly neurotic type, has a negative family history with the exception that two sisters had very difficult labors due to slightly contracted pelves. The past history is negative. This was her first pregnancy General physical condition had been good prior to onset of symptoms. Her weight is 165 pounds.

Her family physician, my brother, at the time he was told that she was pregnant, informed the family that there was a possibitity that she would have to be delivered by a Caesarian section, and that an examination with accurate pelvic measurements was necessary, but because of a sense of false modesty upon the part of the patient, this was refused. He requested urine repeatedly, and only ten days before the date of operation was he able to obtain a specimen. There was a faint trace of albumen at that time. He outlined a diet, impressing on the patient and her family the importance of strict observance, also requested daily specimens of urine. She did not adhere to her diet, neither did they send in the urine for examination. On April 27 he was called to see her, and found that she was suffering with violent headache, and had been having more or less severe headahce for about a week, with dizziness and spots before the eyes. The feet and face were slightly edematous, systolic blood pressure 160. The family was then told that she was in a serious condition, and that operation was almost a necessity. The patient was not in labor. She was given five grains of calomel, and an ice cap applied to the head. I saw her in consultation at noon, at which time we made a vaginal examination, the first and only examination she had. We found that she was not in labor, the cervix was soft and the pelvis was small. Her father had been notified of her condition, and we waited until he could come in. The headache persisted. At about three P. M. she had a convulsion and went into coma. Arrangements were then made to remove her to the hospital for operation.

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*Read at the annual meeting of the West Tennessee Medical and Surgical Association at Paris, May, 1921.

Previous to operation she had two more convulsions, not regaining consciousness after her first one. Preparations were made for the operation just as rapidly as possible and immediately before making the incision she was given one cc. of pituitrin.

The usual incision was made with its center about the level of the umbilicus, the uterus delivered from the belly, towels inserted behind to protect the peritoneal cavity and the uterus opened. The placenta was placed on the anterior surface of the uterus and we had to cut through this to deliver the baby. The cord was clamped in two places and cut between, the baby given to an assistant. Contraction was only fair and we kneaded the uterus. An assistant compressed the uterine vessels below, and another made pressure on the broad ligaments above. Another cc. of pituitrin was given and we soon had firm contraction. The uterine cavity was thoroughly cleaned and we were ready to close the uterus.

Now the uterus in its return to normal size undergoes alternate contraction and relaxation in its process of involution. Due to this fact, after a Caesarian operation, sutures that might be placed while the uterus is relaxed would not hold during contraction, but would become loosened with the contraction of the uterus. Also sutures which are placed while the uterus is in a state of contraction will have a tendency to become tight during relaxation and possibly tear away. In order to take care of this contraction and relaxation of the uterus we proceeded as follows: Before beginning our tier sutures we inserted four sutures of the mattress type, going through all coats except the endometrium and grasped the ends with forceps, to be tied later. We then closed the uterus with three tiers of No. 2 chromic cat gut, continuous, taking care not to include mucosa. After the upper layer had been finished, the uterus still being contracted, I tied my mattress sutures, only tying them tightly enough to be snug against the uterine peritoneal coat. I feel that these sutures are certain to protect the suture line, and that they will bear the strain during the relaxation of the uterine musculature, and reducing to a minimum the danger of a suture line breaking away.

The peritoneal cavity was then mopped out, the uterus returned to the belly, and closure made in the usual way, completing the procedure in fifty minutes. The cervix was now dilated and the uterus packed. The patient was ready to leave the table in one hour.

Ergotol was given hypodermatically every four hours, the woman was put in Fowler's position, saline under the skin for the first three days and sodium bicarbonate by the rectum given. The urea output, which was one-fourth of one on the day of the operation, gradually increased to two by the third day. Albumen and casts disappeared entirely by the fourth. She ran a slightly elevated temperature for several days, but was entirely comfortable after the third. There was very little gas, kidneys and bowels acted freely, milk established on the fourth day, and mother and baby are doing nicely, and are ready to leave the hospital 15 days after the operation. The wound was dry at all times.

Our indications for the operation were: A heavy-set, neurotic primipara, a slightly contracted pelvis, eclampsia, and the patient not in labor. To have attempted to deliver her from below would almost certainly have resulted in the loss of both mother and child, whereas they have both been saved.

I also desire to call special attention to the placing of the mattress sutures about one inch from the suture line, to take care of the relaxation of the uterine muscles in the process of involution.

The patient left the hospital on the sixteenth day and recovery was uninterrupted.

# URETERAL CALCULI.*

By Geo. R. Livermore, M. D., F. A. C. S., Professor Genito Urinary Surgery, University of Tennessee., Genito Urinary Surgeon, Baptist Memorial and Memphis General Hospitals, Memphis.

A calculus that has passed into the ureter, can in the majority of cases, be made to pass on into the bladder. This is a broad statement, but is borne out by my experience, and Crowell of Charlotte, N. C., says he has accomplished it in 98 per cent of his cases. Many patients have been subjected to operation, who could have been relieved by less radical measures. These consist of ureteral dilation by means of ureteral catheters, dilators, etc., the injection of oive oil above, about and below the stone, and grasping the stone with cystoscope forceps or other instruments and making traction upon it.

The diagnosis of ureteral calculi is easy, provided they will cast a shadow on the x-ray plate. If for any reason they will not do so, (uric acid stone, thick abdominal walls, failure to cast a shadow after injecting thorium), a diagnosis is very difficult. Wax tipped catheters showing scratches are helpful, provided we can exclude injury to the wax tip before striking the stone.

Blood from the affected ureter may mean one of many pathological conditions and pus is even more confusing. Puffiness of the ureteral meatus is seen only as a rule in calculi near the ureteral opening in the bladder. Obstruction of the catheter may be due to stricture or a kink in the ureter or to pressure on the ureter (a pregnant uterus, fibroid, etc.) and often a catheter will pass beyond the stone, without giving the least sensation of obstruction. We therefore rely upon a combination of positive findings together with the history and symptoms.

Being certain of our diagnosis, we first resort to cystoscopic methods to induce the stone to pass on into the bladder. Our success depends upon care, thoroughness and patience. Cystoscopic methods can be persisted in as long as the general condition of the patient is satisfactory and the damage to the kidney and ureter is slight. It is remarkable how long a calculus may remain in the ureter without doing any permanent injury. It is therefore incumbent upon us to at least give these patients an opportunity to pass the calculus before subjecting them to an operation.

The methods employed for the removal of calculi by cystoscopic means consist in passing a ureteral catheter to the calculus and if it will not pass beyond it, the injection of a few cubic centimeters of novocaine will in a short time allow it to slip by and pass on to the pelvis of the kidney. We then inject sterile olive oil or glycerine above, about and below the calculus and then make an attempt to pass a ureteral dilator or another catheter up the ureter by the side of the one already in it. Failing in this, we can remove the one that has passed beyond the calculus and introduce the next larger size catheter or dilator. If we can succeed in making it pass beyond the calculus, it is a good plan to leave it **in situ** for twenty-four to forty-eight hours, as it continues to act as a dilator, and olive oil can be injected at intervals to assist the downward passage of the stone.

The Walther dilator is an excellent instrument and can be used alone or in conjunction with a catheter. If the calculus is near the bladder, cystoscopic forceps can be passed up the ureter, the stone grasped and removed. If the ureteral opening in the bladder is oedematous and swollen, fulguration will often reduce it and allow the calculus to pass on into the bladder. If the stone is too large to pass through the ureteral opening in the bladder, cystoscopic scissors can be passed through the operating cystoscope, the ureteral opening incised and if the calculus does not drop into the bladder, cystoscopic forceps can be used to grasp it and make it do so.

I have devised an instrument for removing stones from the ureter, and its usefulness is not confined to stones near the bladder, as it can be passed up the ureter like the Walther dilator, and by following its filiform guide, the stone grasping portion of the instrument can be brought in contact with the calculus, then by opening the jaws, the stone is grasped and gentle traction made upon it. The injection of olive oil above the calculus facilitates its removal.

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*Read at the annual meeting of the West Tennessee Medical and Surgical Association at Paris, May, 1921.

I heartily disapprove of the use of wires, stiff metal instruments or the Cunningham catheter in attempting to remove stones from the ureter, except when near the ureteral orifice in the bladder, on account of the danger of tearing through the ureter.

As my instrument for removing ureteral calculi is made of flexible material and has a filiform guide, the danger of injury to the ureter is minimized.

## THE VALUE OF OCCUPATIONAL THERAPY IN STATE HOSPITALS.

By Dr. Edwin W. Cocke, M. D., Superintendent Western State Hospital, Bolivar, Tenn.

As I reflect upon the subject of this article the old and familiar adage, "An idle brain is the devil's workshop," almost unconsciously presents itself to my mind. It is unspeakably evident to those of us who are engaged in the care and treatment of the mentally disordered that this old saying is undeniably true; for idleness, so long the curse of the sane, is no less ravaging in its effect upon the insane. We have in our institutions patients who have done nothing for years but sit idly and vacantly on their wards until they have almost lost the use of their hands and limbs; some of them never move unless directed to their meals or beds by nurses and attendants; hundreds of them never obey nature's impulses. They have become untidy and filthy in their habits—thereby entailing unpleasant work upon employees and increasing laundry to a great extent. Because of idleness and lack of employment others are discontented, restless, violent and disturbed, thus contributing to the general demoralization and confusion of the wards. How to interest these people, how to reclaim and re-educate that portion of brain, however small, which remains with them, is a question of almost gigantic proportions which confronts us. Therefore, it is with a feeling of greatest confidence and expectation that we accept the method of diversified occupation as a means of rehabilitation for those so unfortunately handicapped.

While it is true that for many years therapeutic occupation has played a part of almost unlimited importance in the cure of the blind, the crippled, the deaf and dumb, the incurable, etc., it is just beginning to be recognized as a remedial factor of greatest importance in the treatment of the insane. It has taken a world war to give this method of rehabilitation the meaning and the place in the thoughts of our people that it should occupy. While for a long time it has been advocated for the insane, it was looked upon more as a fad, or a kind of luxury or non-essential, until introduced to the public as a practical device by war needs and activities. Now re-educational and occupational therapy have assumed an importance in our state and private hospitals almost wholly unthought of in the past. A national association for the promotion of occupational therapy has been organized, thus indicating that the movement has grown to proportions which need the stimulus of national contact. This organization is endeavoring to introduce occupational therapy into all institutions where its use will prove beneficial.

Occupational therapy is the employment of the mentally or physically sick or disabled in productive occupation as a supplement to medical treatment. Effort is made to interest every patient physically able in some form of occupation. The work is confined to two classes of patients, i. e., those who may be reeducated and trained to become useful members of the hospital population, and those who may return to their former places in public work. The former class includes the badly deteriorated cases, who are usually regarded as incurable. These patients, if left alone to spend their time in idleness, continue to deteriorate and finally lose all interest in themselves and their surroundings, eventually developing filthy and untidy habits with the result that a number of them often lead a life which is the most miserable in existence. With suitable occupation, the majority of these patients can be greatly benefitted. They eat and sleep better, they become less destructive and untidy. There is a gradual return of interest in personal appearance; clothing is cleaner and better cared for, the number of garments torn by idle hands is lessened, and while they never improve sufficiently to leave the hospital, they become better members of the hospital family.

Occupation as applied to the second class of patients, i. e., those who are regarded as curable, is of paramount importance, inasmuch as it aids in the return to the normal and by arousing the interest of the patient it promotes confidence and keeps his mind from introspection. It also serves to make the patient more contented during his stay at the hospital. This class of patients are often not only restored to health, but in some instances have left the hospital prepared to follow as a trade or profession the work in which they have become proficient during the course of treatment.

The occupation includes every form and character of work for all grades of insane patients, ranging from labor on farms and gardens to raveling old stockings; from work in carpenter shops to fashioning toys; from work in kitchen and bakeries to knitting and tearing rags for carpets; from sweeping and bed making to basket weaving and embroidering; from painting inside walls to making scrap books and raveling burlap; and so on through a great many other kinds of work and employment. The economical value of the work however is of least importance and the principle object is to employ the minds and hands of the patients in healthy activity; to arouse interest, courage and confidence; to discourage depression and introspection; to eliminate untidy habits, and to do away with idleness, restlessness, disturbance and violence. Occupational therapy is therefore a means not only to save the state money, but to make the lot of the patient more comfortable and pleasant and to keep him in a better state of physical reservation and in a more presentable condition. It has already been noted that since the advent of therapeutic occupation restraints have been abolished and it is believed that in the course of time the so-called untidy, violent, and disturbed wards will be entirely obliterated.

In applying occupational therapy, it is important that the needs of each individual patient should be studied and employment selected that is best adapted to that particular individual. Something which especially appeals to the patient, and easily within range of his interest and capability should be chosen. As his proficiency increases the type and extent of the occupation should be regulated accordingly. He should always receive the encouragement and stimulation of the instructor and standards worthy of entirely normal persons should be maintained for his work. A daily plan or program should be mapped out, and this should be followed with precision and system. With untidy and disorderly patients, the work goes on continuously somewhat as a mother trains her child, twenty-four hours each day, until that patient forms habits of cleanliness, neatness and orderliness. Care should be taken to train them to carefully remove and put on their clothing; they should be given drills in face washing; taught to lace and tie their shoes; instructed in table manners and taken to the toilet at regular intervals until correct habits are formed. In other words, they should be patiently trained in all the little things that occur in the day's routine and dealt with just as we would deal with a little child.

It might be well to add here that "all work and no play makes Jack a dull boy," so we must not forget that the work must be interspersed with the proper amount of exercise, amusement and diversion. It is well to have alternate classes of occupational training and physical culture or gymnastic exercises. We should also encourage the weekly dances, moving pictures, social affairs, country walks, and rides, ball games and various other entertainments. When the work is interspersed with these forms of amusements, we are certain to find the results most gratifying.

It goes without saying that instructors in occupational therapy should be persons of excellent ability, tact, patience, resourcefulness and organizing capacity. Not only should the teacher have technical training in kindergarten and simple craft work, but still more she should be filled to overflowing with mother love for the unfortunates of the world.

We have the majority of patients at Western Hospital engaged in some health giving employment. In fact, patients assist in carrying on the work of almost every department in the institution. However, we have not funds for the necessary equipment and instructors for a complete occupational therapy department. I am deeply interested in the installation of such a department in each of our State hospitals, and trust that the time is not far distant when we shall have it.

The system of occupational therapy has come to stay. Already it has proven itself to be helpful, beneficial and practical, as the means of re-educating and reclaiming the unfortunates who are in our institutions for the insane. It is only through the medium of occupation that we are able to give back to the patient a definite interest in life, thereby furnishing him a safe harbor where he can find anchorage from an aimless and hopeless drifting on a trackless sea of inactivity.

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# ACUTE INTESTINAL OBSTRUCTION DUE TO STRANGULATION OF A LOOP OF SMALL INTESTINE BY MECKEL'S DIVERTICULUM.

By Robert W. Grizzard, M. D., Surgeon to Woman's Hospital, Nashville.

Before reporting a case I wish to make a few remarks about the embryological development entering into this condition.

Meckel's diverticulum is a congenital anomaly caused by a persistence of the protruded portion of the small gut which is known as the intra-abdominal portion of the vitelline duct, and which is normally obliterated during the seventh week of foetal life. The vitelline duct connects the gut with the yolk sac at an early period of embryological development. It assumes most commonly the form of a finger-like protrusion ending, as a rule, blindly, from the terminal ileum about one meter from the ileocecal junction. It most often springs from a point opposite the mesenteric border, and generally has a smaller lumen than the adjacent coils of ileum. It is of fairly common occurrence, being found in about one per cent of all subjects. Since the process of obliteration may be arrested at any stage, it naturally follows that there may be all degrees from the most frequently observed shallow pouch of one or two centimeters in depth, to the patent diverticulum which preserves its connection with the umbilicus, and from which a small amount of mucus exudes, mixed at times with watery fecal material and constituting a persistent umbilical fistula.

A common variety is seen as a protrusion about the size and shape of a glove finger and possessing a rudimentary mesentery. Sometimes its distal portion is dilated so that it assumes a bulbous appearance.

There is usually a persistence of all the coats normally found in the small intestine, and histologically the mucosa resembles that of the ileum.

There are a number of pathological conditions in which the diverticulum of Meckel becomes involved, although, considering its incidence in one per cent of all subjects, it is not commonly the seat of trouble. Perhaps inflammatory processes are among the most frequent, and diverticulitis is attended by a symptomatology that renders its differentiation from appendicitis extremely difficult.

Intestinal obstruction due to Meckel's diverticulum may be produced in several ways:

(1) Volvulus may take place by rotation of the ileum about its mesenteric border, caused by the lever action of the distended diverticulum.

(2) Intussusception has occurred due to the invagination of an inverted diverticulum into the ileum, forming the starting point for a progressive intussusception.

(3) The commonest form of obstruction is caused by the diverticulum assuming the role of a band and causing strangulation of the bowel loops caught between it and its attachment to the intestine, and to the abdominal wall, generally at or near the umbilicus, or more rarely to the posterior parietal peritoneum near the root of the mesentery.

As the obstruction grows more acute the diverticulum as well as the obstructed coils of gut becomes gangrenous and perforation may ocur.

### Case Report.

**General data**—Crutcher, K., male, age 19, admitted to Woman's Hospital February 19, 1921.

**Chief Complaint**—Abdominal distress with severe shock.

**History**—Family, negative. Personal history: Patient a farmer, had always enjoyed excellent health, except history of two previous similar attacks, one and two years previous to this one. Each of these attacks was of short duration, disappearing after a few hours. No history of typhoid fever, tuberculosis or rheumatism. Denies venereal diseases. Uses tobacco in moderation, and whiskey when able to get it. No change in weight during past year.

**Present illness**—About 2 p. m., 42 hours prior to his admission to hospital, patient was awakened by severe colicky pains in abdomen. These pains would recur at short intervals of a few minutes. The paroxysms continued to grow worse, and his doctor was called, who gave him a hypodermic of morphine, grains ¼. Castor oil was given with no results, lower bowel emptied by enema, no flatus expelled. Patient soon became nauseated by enema and vomited at frequent intervals. A second hypodermic was given some hours later, and patient was advised to go to hospital.

**Physical examination**—On admission to hospital, his general appearance was that of a fairly well nourished, young adult, weight 125 pounds, in a severe shock.

**Chest**—Negative.

**Heart**—Heart sounds weak and feeble, 150 per minute.

**Abdomen**—Uniformly and markedly distended, but no palpable mass made out in any portion. Diffuse tenderness over entire abdomen, slightly more marked over right lower quadrant. Pain had practically ceased, except on rather deep pressure. Patient unable to void, and on catheterizing two ounces of urine were gotten. Tympany everywhere, no muscular rigidity, no audible peristalsis. Temperature by mouth 96 degrees, rectal temperature not taken; rapid and thready radial pulse. Rectal examination negative. Patient did not vomit during short interval of about forty minutes that elapsed from the time he was admitted until operated upon. External abdominal rings normal in size.
**Blood Pressure**: Systolic 90, diastolic 40.

**Laboratory Report**: Urine negative, except faint trace of albumen and few hyalin and granular casts.

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|---|---|---|
| Blood— | R B C | 3,840,000 |
| | W B C | 9,600 |
| | Polys | 80% |
| | Hemoglobin | 85% |
| | Coagulation | 5 minutes |

**Preoperative Diagnosis**—While we were unable to make definite diagnosis of the condition, we felt certain that the very acute abdomen which he presented made immediate exploration not only desirable but imperative. Intestinal obstruction and paralytic ileus were considered, but since the case clinically simulated a ruptured appendix, and the latter being the most frequent, a diagnosis of ruptured appendix was entered on his chart.

**Operation**—Operative Findings: There was a large amount of black, bloody fluid in peritoneal cavity, together with a large mass of black gangrenous small intestine greatly distended, and filling almost the whole abdominal cavity. This gut was found strangulated under a bridge formed by Meckel's diverticulum, extending from the umbilicus to a point on convex border of the ileum, about eighteen inches from the ileocecal valve. The diverticulum was approximately eight inches long, coming off at right angle from the ileum, nearly of the same calibre as the normal small intestine in the half proximal to the ileum, but smaller and more cord-like in the distal half. About eight feet of intestines, together with the diverticulum, was resected and an end to end anastomosis was made. Patient responded to stimulation for first 48 hours after operation, and it looked as if he had a chance to recover. He died on the fourth day, supposedly from toxemia, due to intestinal stasis.

In a hurried search of recent literature I find the following cases of strangulation from Meckel's diverticulum:

Jas. E. Johnson—Two cases of intestinal obstruction due to Meckel's diverticulum, reported at the Southern Surgical Association in St. Louis in 1897.

E. W. Sympson—Lancet June 30, 1917, page 998, one case.

Roscoe Graham—Journal of the Canadian Medical Association, November 1918, four cases.

Habhegger—Interstate Medical Journal, September 1915, one case.

Holbeck reports three cases in 1900, observed at City Hospital of Riga.

Behard and Delore collected 32 cases of laparotomy for occlusion due to Meckel's diverticulum, with nine cures and twenty-three deaths—72 per cent mortality.

Fergus—Glasgow Medical Journal, 1915, one case.

R. A. Bennet—In the Lancet, June 1919, one case.

Drybrough and Smith—Lancet, London, 1917, one case.

William B. Coley—Annals of Surgery, May 1921, one case.

W. F. Pearce—U. S. Bulletin, Washington, 1919, Volume XIII, page 346, one case.

E. A. Wilkins—Medical Press, London, 1919, one case.

Hertzler and Gibson—Kansas City, Mo., American Journal of Medical Sciences, Philadelphia and New York, one personal case and appended thereto were brief histories of forty cases previously recorded.

Bolt collected fifty-five cases with fifteen laparotomies and only three cures; mortality 80 per cent.

The interval of time elapsing between the first symptom and operation in all the above series varied from two to eight days with the exception of one, which was less than twelve hours. This case recovered. The mortality in the above series ranged from 72 to 80 per cent.

Balfour, in a review of ten thousand successive operations performed at the Mayo clinic from 1907 to 1910, reports fifteen cases of Meckel's diverticulum, but in only five of these cases had the diverticulum given rise to symptoms, and only one of the five was operated upon for acute intestinal obstruction.

Doctor Finney, in his recent exhaustive paper on two hundred and forty-five cases of acute intestinal obstruction at Johns Hopkins, over a long period of years, states that there was not a single case of acute intestinal obstruction due to Meckel's diverticulum.

Realizing that it is not the usual custom for surgeons to report their deaths, and too, that it is not wise except on rare occasions, to advertise our fatalities, I reluctantly present this case with an appeal for an earlier surgical intervention in cases of this type. My belief is that the mortality of acute intestinal obstruction from Meckel's diverticulum could be greatly reduced if operation is done early, say, within the first ten to twelve hours, instead of after thirty-six to seventy-two hours, as in most of the cases operated upon.

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# EDITORIALS

## FROM OUR PRESIDENT.

How may the President of the Tennessee State Medical Association serve the Society in a manner that will be helpful to all its members? This question is constantly coming into his mind. He thinks of many things and of many conditions which he feels might be bettered, and many of them appear to be so patent that he hesitates to write about them for fear of being trite.

It might be well to consider whether or not the membership of the Association as a whole are taking the full value of the many cogent suggestions conveyed to them every month by our Secretary-Editor. How many of us are taking these suggestions to heart and are willing to act upon them with intelligence and vigor? What can we do to make the Secretary's office one hundred per cent efficient? We can read his bulletins, watch for words of warning meant for the good of all in matters of public policy, and can give intelligent support and offer constructive criticism. We can also help our Secretary in his capacity of the health officer of our state, and can render distinct public service in helping to strengthen the efficacy of the State Department of Health, as well as local and county departments of health. For instance, we can report our cases of communicable diseases, and we can report the births we attend, and we can assign definite causes on certificates for deaths, in most instances, and otherwise give valuable assistance which will enable our public health agencies to complete necessary data for developing the public health problems in our state and for devising plans to deal with these problems.

How long! how long, oh, Cataline, are we going to sit idly by and permit legislation to be enacted that operates to our hurt and many times to our humiliation?

How long are we going to permit corporations, public utilities and quasi-public institutions to exploit our labors for a profit?

Why should Dr. A. get the pitiful sum of $100 per month for $500, or maybe $1,000, worth of service, for which the corporation collects $1.00 per man from a pay-roll covering five hundred or one thousand men?

What steps will the medical profession take to correct the abuses of the Workmen's Compensation Act? The abuses are many. In the first place, the injured person is the "fall guy." He's just an innocent by-stander. Next in the case of the seriously injured, the doctor and the hospital, after putting out $100 worth of skill and service, x-rays and hospital appurtenances, are relegated to that variety of hollow-horned ruminant called **capra hircus**, which being interpreted meaneth goat-the-goat. Those of us who have felt the sting of embarrassment when a badly injured person has been put into our care will understand and fully appreciate the operation of the Workmen's Compensation Act. Such an injured person requires much hospital care, x-ray pictures, anesthetics, anti-tetanic serum, anesthetists and surgical assistants. Many times a major operation is necessary. The "first aid" runs the bill up to $150.00 to $200.00, or it may be even more the very first day. The patient is one of your regular clientele. He comes to you or is sent to you because of his confidence in your ability and skill. You treat him with ability and skill, not to speak of that gentle care and mayhap a small exhibition of the milk of human kindness—sometimes affected by the doctor. He is perfectly well able to pay his bill. But in the length of days, maybe soon or late, maybe when you've treated him a month or six weeks, the Workmen's Compensation Acts steps in and tells you that your patient is "protected" by the W. C. A., and everything that has been done and the charge therefor by you; the hospital, the man who owns and runs the ambulance that hauled him to the hospital, the anesthetist who furnished the ether, oxygen and gas,, etc., etc., must be squeezed into one hundred dollars, and that prorated to each one.

Now the writer has spoken of embarrassment and humiliation. When such a thing happens to you, aren't you embarrassed? Aren't you humiliated? Yes! and more; you are as mad as hell! Then, too, employer's in some instances are sending injured employees to college clinics and free dispensaries and municipal hospitals, and attendants at these institutions are preparing necessary reports for insurance companies, thus avoiding medical fees and by such practices insurance rates are kept down.

The insurance agent is the man with the "big stick." He is the person who tells the employer what doctor is acceptable to the insurance company. And when an injured person falls into the hands of a surgeon possessing the skill of much experience, and who knows the value of service, and such a surgeon demands a decent and adequate fee, an effort is made to reduce the fee, and he is pointedly told that the man with the big stick will have no more of him.

Our Committee on Social Insurance will be expected to come to the Memphis meeting with well defined plans for such amendments to the Workmen's Compensation Act as will protect in a decent fashion the injured person and will assure a reasonable and fair compensation for medical services and hospital care. It is of vast importance that such amendments be passed at the next legislature. It is also important that the profession of the state inform themselves to the end that they may act with intelligence and decision in this matter.

In this connection it must not be forgotten that the chiropractors are practicing in this state without any license whatsoever of statutory law, save only the **ipse dixit** of a Supreme Court decision. It is surprising, indeed, that the chiropractors did not have the whole Medical Practice Act declared unconstitutional on the ground that it discriminated against them, as was done in one of the Middle Western States. It appears that such a procedure might have been just as easily accomplished.

Is it or is it not a matter of concern to the doctor, whether the secrets and confidences of the consulting room abide within his breast inviolate? The present statutes may wring them from you. Albeit, the priest and the lawyer hold such information as privileged, and the court durst not question. Will we secure the privilege for ourselves and our patients?

The president indulges the hope that our Committees are functioning to the extent of their several abilities for the good of the medical profession and the citizenry of the state. The duties of some of the committee have not been defined by our constitution and by-laws. It is the intention that these defects may be cured by the next House of Delegates.

The president would welcome any suggestion from any member, that might be for the good of the doctors of Tennessee, through which he may be enabled to better serve them. —Wm. Britt Burns.

## UNDERNOURISHMENT IN CHILDREN.

The work of the Division of Rural Sanitation of the State Board of Health in rural schools in Tennessee has shown that a relatively large per cent of all children examined are undernourished. From twenty to thirty per cent of the children in the average country school are more than ten per cent under normal weight for age. In one group of 483 children recently examined in twelve country schools in a Middle Tennessee county, twenty-five per cent were found to be underweight. In these same schools a year ago, more than forty per cent of the children were found to be more than ten per cent underweight. There were 298 of these children who were re-weighed lately and it was found that they had recorded a total gain of 3,438 pounds. The normal gain for these children, due to ordinary growth, would have been 1,948 pounds. There was, therefore, a net gain for the 298 children of 1,490 pounds, an average net gain of five pounds for each child.

Of the 298 children who were followed up, only four failed to gain, while seven lost weight. Of the seven who lost, five were markedly over weight when first examined. and their loss of weight was a thing to be desired.

It was found, also, that of the 298 children followed up, just 156, or 52 per cent had reported to physicians and dentists for corrective treatment of physical defects discovered at the time of their first examination. These defects varied in kind from the most minor conditions, to conditions of a very serious nature, both in the children who applied to their physicians for treatment, and in those who did not.

In the school examinations done by the field service of the State Board of Health a careful record is made for each child. Every one who is found to have any condition needing treatment is referred to his own physician, a statement of findings being sent to the child's parents.

Instruction is given to all/the children in general health matters, the simple rules of right living being impressed upon them as well as may be done. What to eat and what not to eat, the need for sleep at the right time. the value of fresh air indoors and out, the benefits of wholesome exercise, personal cleanliness—in fact, the simple gospel of sanitation and clean living is preached to the children. They are also taught the need for relying upon their doctors for help in keeping well and in the treatment for disease. Well chosen physical exercises are taught the children, tooth brush drills are carried out, and in some instances where the children have no games in their leisure hours, games are taught them.

It is remarkable and most gratifying to witness the response yielded by the children to these efforts for their physical improvement, and it is good to see the improvement made by them in class records as their physical condition is improved. It is fine to see an eight year old boy yor girl take on weight and the glow of health when persuaded not to drink the usual two cups of coffee at a meal, but to substitute for the coffee two glasses of milk. It is pathetic to see the little fellow who cannot buy a toothbrush bring his stick tooth brush with him for the tooth brush drill, but it is encouraging and gratifying in the extreme to see such a demonstration of guts and determination to do his best to keep up with his more fortunate fellows. It is a delight to see the child whose defects of vision have been corrected go about his school work in comfort, getting through his glasses which the doctor has fitted for him a more abundant opportunity for securing education and, also, a really new outlook on life.

In a number of towns and in several counties in the state the resident physicians have examined the children in the schools. This is a work which will surely bring its benefits to any community where the work is well done. It may be that the good results are not immediately apparent, but they are sure to come.

## EDITORIALS IN COLLIER'S WEEKLY.

Collier's Weekly has for a long time fought for the protection of the public against quacks and fakers. Its exposure of patent medicines and the methods of patent medicine makers, through a series of carefully written articles from the pen of S. H. Adams, was in the nature of a distinguished public service. Collier's has stood strong for the cause of scientific medicine. In our opinion, this great national weekly deserves the support which the medical profession can give it.

Two editorials which have appeared in Collier's within recent months are reproduced here, without comment, because we think the Journal's readers will find them interesting.

## ARE YOU DOCTORING YOURSELF?

You know the tradition that Chinamen pay their doctors as long as they keep well, and stop paying them as long as they are sick. If it isn't true, it ought to be. And only lately we heard of a group of young family men in America who have clubbed together to pay a good, all-round doctor a regular yearly income—and a pretty good one too—with the understanding that he will be at their service at all times without extra charge.

That is a good idea, provided you can find the right doctor. Do you know him? Our grandfathers would not have hesitated. Every doctor, almost, was expected to know all about everything. He could and did treat pleurisy, broken bones, croup, cancer, measles, and consumption. He had to. And there was no appeal beyond his judgment: no further resources of diagnosis or treatment.

After a while doctors themselves became reluctant to bear the responsibility of knowing all things about all men. They divided themselves first into physicians and surgeons. Then the specialist fever attacked them; they became stomach specialists, throat specialists, orthopedic surgeons, etc. As a doctor's reputation grew larger, the scope of his practice grew narrower. Few of these specialists were foolish enough to believe that the field of their specialty was sharply cut off from the rest of the body—but their patients were not so cautious.

The mere sound of the word "specialist" was alluring. Specialization was the keynote of the age. As a mining engineers dug mines, and a chemical engineer worked in a laboratory with test tubes, and a mechanical engineer designed bridges, so would the "nose and throat man" work on that part of you, and a "neurologist" patch up jangled nerves, and an "eye specialist" work only on eyes. Efficient, wasn't it?

It was so efficient that many a patient discarded his family doctor altogether. He didn't know that he was doctoring himself without a certificate—but that is just what he was doing when he decided for himself what part of his anatomy was affected, and made straight for a specialist in that department.

"Why should I pay money to a general practitioner for a physical examination," asked Robinson, "when all that ails me is a headache, and everybody knows that headaches come from eye strain? I will go to an oculist."

"I suffer the same way that you do," said Brown, "but headaches come from indigestion and I am going to the best stomach specialist in the city."

Later—perhaps years later—after Robinson and Brown had each continued to have headaches that crippled their earning power and took most of the joy out of life, both of them came reluctantly to the conclusion that they had not been so smart after all. It has often proved a fact that Brown's headaches could be relieved quickly by Robinson's oculist, and that the doctor Robinson should have seen was Brown's stomach specialist. But both men were too dazzled by the "specialist" notion to get themselves thoroughly examined and directed to the appropriate doctor at the start.

It would surprise most people to know that many doctors, even now, would lose their practice if they dared to suggest to women patients that their self-diagnosis was inaccurate and that a complete examination was necessary. Mrs. Robinson and Mrs. Brown are as bad in this regard as their spouses.

Many a specialist of imperfect vision and narrow mind contributed to this general state of affairs, but the greater cause was the too smart public, bent upon saving time and showing its own wisdom by self-diagnosis.

A great many doctors believe that we are now approaching a sound middle ground. The war helped. It shook up together in the great base hospitals the general practitioner and the specialist, the country doctor and the medical school professor. It did them all good. And the present trend of advanced medicine is away from the individual specialist and toward what is called "group practice."

In the very old days a doctor who admitted to a patient that he couldn't or wouldn't treat any malady under the sun lost his patient. In the second era a specialist who encountered an ailment outside his own narrow field discarded the patient. The standard now sought is an all-round doctor, sound in general diagnosis, who can make a thorough examination and determine into which of a few general classifications his patient falls.

To be technical for a moment, suppose that this examiner finds that the trouble lies in the patient's gastro-intestinal tract. He will then refer him to the member of his associated group who knows most about gastro-enterology, but who is not so bound up in that specialty that he cannot recognize the effect of other elements, such as eyestrain, posture, exercise, and the general make-up of the individual.

That is a step forward. It saves money, among other things. It will make further progress when medicine throws off the remaining shackles of superstition which cling to it. People still expect miracles. If they demand honest treatment on the part of the doctor or surgeon, they must be equally honest with him. They must very largely discard their faith in pills, powders, and drafts; and the ordinary man must no longer feel insulted when he goes to the doctor for medicine and gets nothing but a physical examination and a gentle lecture on his foolish habits.

There are very few diseases which can be wholly ascribed to hard luck and an evil destiny. Health is almost entirely a matter of what you do and of what surroundings you do it in. Bad health is a loss, but usually a preventable loss. All that the best physician can do is to point out the road to improvement. The patient can make it easy or hard for the doctor, depending on whether (1) he quits doctoring himself, (2) doesn't really "enjoy bad health," but has the will to be well, and (3) does what the doctor advises him to do.

It is a good thing to know that the human body is the most durable of all machines, and, given half a chance, will run better and longer than any other engine in the world.—Collier's Weekly.

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## HANDS OFF THE DOCTORS!

Some time back the Johns Hopkins Hospital trustees named $1,000 as the maximum fee that ought to be charged for any operation. The public at large immediately jumped to the conclusion that overcharging by doctors was common throughout the country, and that all fashionable practitioners were being censured.

Now, nothing could be more untrue. The medical scamp, the quack, the selfish money seeker has been well-nigh driven from the ranks of the profession. Taken by and large, medicine is today the least commercialized, the most overworked and the most underpaid of the essential skilled professions—excepting only teaching and the ministry.

Nor are we inclined to cavil at the rather common practice of "charging what the traffic will bear." Fees cannot be standardized, and there is ample ethical justification for charging Mr. Moneybags $5,000 to yank out his appendix if thereby Dr. Soakum is given leisure to operate for nothing on a dozen tenement-house children in the clinic.

Hands off the doctors, for they are not of the profiteer class. And even the big chargers never get their bills until the last—until the butcher, the baker, and the garage man have got theirs.

## PREYING UPON A CHILD.

The peripatetic "optician" is abroad in the land. Naturally, the peripatetic is abroad, whether he be an "optician" or just an ordinary hobo. But here's the way the wandering spectacle fitter plays the game.

Recently the children in a remote country school were being examined by a physician. Among other things done was the examination and testing of the children's eyes. One boy who wore glasses came up for examination and his vision, with glasses on, was found to be considerably below normal. A little later the boy's vision was tested with his glasses off and found to be normal. Inquiry developed the fact that a migratory "optician" had sold the boy spectatcles when he did not need them, and had then come back and changed the glasses two or three times within a short interval, getting money each time, we presume.

We believe this is worse than the trick of selling grandma her own glasses by the simple expedient of taking them out of their frames. wiping them off good, and then putting them back.

## COUNCILORS.

The plan of organization of the American Medical Association, the state medical society, and the county medical society, is about as perfect a plan as could well be devised. In this plan there is no more important individual than the councilor. The Board of Councilors is the very balance wheel of the state medical society, and it should and must function if the plan of organization works.

There are ten councilor districts in Tennessee, and each district is served by a councilor selected at the annual meetings of the state society. The councilors are always chosen because they are believed to be representative men, and men who can and will consider carefully and impartially and intelligently every matter that may come before them for consideration, and, for the further reason that they can and will do all that is necessary to keep alive the interest and the work of the various county societies in their respective districts. The Board of Councilors of the Tennessee State Medical Association as at present constituted is composed of ten men who have shown their interest in medical organization in their own county societies, in the state society, and wherever else opportunity has been offered. We are expecting a fine report from this Board at Memphis.

## THE SELF BOOSTER.

The following communication has been received by the Journal, which describes, we take it, a situation existing in the community from which it comes.

"It is said that the best lawyers do not court practice; that so long as they are not specifically called on to attend or to take charge of a case they remain "mum." That is fine. The regular ethical doctors do things about the same way—wait until called on. However there is another class of doctors who are not so composed; it seems that they are built on the aggressive plan. These have a habit of hanging around in the way, evidently anticipating an accident or an emergency call.

"They are the fellows who approach a citizen and inquire: "Who is your family physician, Mr. Jones? If I can at any time be of service to you, I shall be glad to have you call on me." Or, "I have a good car, Mr. Jones, and can make a quick run to your community in case of accident or sickness." It may be that Mrs. Smith is known to be in expectancy of an early confinement, and this sort of doctor has one of his special lady friends to get word to Mrs. Smith that he makes somewhat of a specialty of obstetrics, and has never lost a case; that he has all the latest up-to-date appliances and methods for rendering safe and effectual service. He has officiated at so many deliveries this year, etc., etc.,

"It is this same sort of fellow who tells the family and the neighbors: 'When I arrived, the child was dead. Too bad! Too bad! Had I been called in time the child would have been living.' " Or, 'It is well that you got me when you did, for had you not this patient would have died.' "

Yes, we have known of performers of the sort described, but we have never known one of them to get any practice worth having by such methods, or, at least, have never known any practice so secured to continue very long. Even though the ambulance chaser and the corner-standing opportunity grabber manages to secure temporary advantages by which his financial income is increased, he never has for long the respect of either the lay or the professional citizens of his community, and it is a very sure thing that no doctor can make a lasting success in his work who does not earn and hold the respect of those among whom he lives.

The best way to get practice is for the doctor to be where he should be when he is wanted, and to deliver the goods when called on. He should be in his office during office hours, and at other times during the day when he is not in attendance upon his patients. There are many really good doctors who have never succeeded as well as their attainments and proficiency entitle them to succeed, because they can never be found when they are needed.

The ambulance chaser is a contemptible individual. The good doctor who is a loafer is censurable.

# OUR COUNTY SOCIETIES

## OFFICERS AND COMMITTEES.

Officers and committees of the Tennessee State Medical Association for 1921-22 are as follows:

President, Dr. William Britt Burns, Porter Building, Memphis.

Vice-President for West Tennessee, Dr. A. B. Dancy, Jackson.

Vice-President for Middle Tennessee, Dr. L. W. Edwards, Nashville.

Vice-President for East Tennessee, Dr. G. P. Zirkle, Kingston.

Speaker of House of Delegates, Dr. A. F. Richards, Sparta.

Treasurer, Dr. J. F. Gallagher, Jackson Bldg., Nashville.

Secretary, Dr. Olin West, 327 Seventh Avenue North, Nashville.

Trustees of the Journal, Dr. C. J. Broyles, Johnson City, (Deceased), Dr. Hermon Hawkins, Jackson, Dr. J. F. Gallagher, Nashville.

Councilors: First district, Dr. C. P. Fox, Greeneville; Second district, Dr. S. R. Miller, Knoxville; Third district, Dr. J. A. Hardin, Sweetwater; Fourth district, Dr. Z. L. Shipley, Cookeville; Fifth district

Sixth district, Dr. W. C. Dixon, Nashville; Seventh district, Dr. M. A. Beasley, Hampshire; Eighth district, Dr. M. S. Herron, Jackson; Ninth district, Dr. E. H. Baird, Dyersburg; Tenth District, Dr. J. L. McGhee, Memphis.

**Committees:** Committee on Public Policy and Legislation: Dr. H. M. Tigert, Chairman, Nashville; Dr. H. S. Shoulders, Nashville; Dr. A. G. Nichol, Nashville; Dr. A. B. DeLoach, Memphis; Dr. E. R. Zemp, Knoxville.

Committee on Memoirs:

Dr. I. A. McSwain, Chairman, Paris; Dr. Carroll C. Turner, Memphis; Dr. D. E. Shields, Morristown; Dr. R. W. Griffin, Tiptonville; Dr. T. E. Abernathy, Chattanooga; Dr. S. S. Moody, Shelbyville; Dr. M. B. Murfree, Murfreesboro; Dr. G. H. Price, Nashville; Dr. W. J. Sugg, Dickson; Dr. G. P. Zirkle, Kingston; Dr. J. L. Edwards, Brownsville; Dr. M. L. Blanton, Union City; Dr. T. B. Wingo, Martin, Dr. B. F. Fyke, Springfield; Dr. J. J. Cullings, Memphis.

Committee on Medical Defense:

Dr. S. R. Miller, Chairman, Knoxville; Dr. J. L. Crook, Jackson; Dr. H. M. Tigert, Nashville. (This committee continued by House of Delegates).

Committee on Conservation of Vision:

Dr. E. C. Ellett,, Chairman, Memphis; Dr. S. T. Hubbard, Chattanooga; Dr. Hilliard Wood, Nashville.

Committee on Health and Public Instruction:

Dr. J. B. Steele, Chairman, Chattanooga; Dr. W. N. Lackey, Gallatin; Dr. A. F. Richards, Sparta; Dr. W. J. Matthews, Johnson City; Dr. Oliver Hill, Knoxville; Dr. S. S. Crockett, Nashville; Dr. Coleman C. Burns, Memphis; Dr. G. B. Gillespie, Covington; Dr. N. S. Walker, Dyersburg.

Committee on Cancer:

Dr. W. D. Haggard, Chairman, Nashville; Dr. Wm. T. Black, Memphis; Dr. J. W. Brandau, Clarksville; Dr. C. P. Fox, Greeneville.

Committee on Education:

Dr. Jas. B. McElroy, Chairman, Memphis; Dr. W. H. Witt, Nashville; Dr. W. J. Breeding, Sparta; Dr. W. L Williamson, Memphis; Dr. L. E. Burch, Nashville; Dr. W. K. Vance, Sr., Bristol; Dr. Geo. R. West, Chattanooga; Dr. Hermon Hawkins, Jackson.

Committee on Social Insurance:

Dr. H. B. Everett, Chairman, Memphis; Dr. B. S. Rhea, Lebanon; Dr. J. T. Moore, Algood; Dr. Robert Caldwell, Nashville; Dr. C. J. Carmichael, Knoxville; (This Committee continued by House of Delegates).

Committee on Hospitals:

Dr. Frank D. Smythe, Chairman, Memphis; Dr. W. R Wallace, Memphis; Dr. W. C. Dixon, Nashville; Dr. G. C. Williamson, Columbia; Dr. O. Dulaney, Dyersburg; Dr. E. T. Newell, Chattanooga; Dr. W. P. McDonald, Spring City; Dr. C. N. Cowden, Nashville; Dr. O. S. McCown, Memphis; Dr. J. K. Blackburn, Pulaski; Dr. J. A. McCulloch, Maryville; Dr. L. L. Sheddan, Knoxville; Dr. S. H. Hodge, Knoxville.

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## FIRST TO REPORT.

Wilson County and Polk County have a great race every year to see which will be first to report for the new year's enrollment. This time Dr. W. S. Dotson, Secretary of the Wilson County Medical Society, beat Dr. F. O. Geisler, the Polk County Secretary, by one day. Anderson County, through Dr. J. W. Hall, Secretary, was only two or three days behind Polk.

It is not required that any county secretary report for the new year before January 1, nor is it required that any member should pay annual dues prior to that date. But it's a mighty good sign that a secretary is "right on the job'' when he collects dues and makes his report within twenty-four hours time; and it means that the members feel that their membership is worth while when they pay their dues and are properly enrolled two weeks or more before the new year has begun. Nobody profits by waiting until a few days before the annual meeting of the State Association to pay dues, but this practice, which all too widely obtains, does lead to error and confusion, and does indicate an indifference and lack of interest that ought not to exist.

Pay your dues, Dr. Member, and let your name be entered on the roll now!

Collect the dues, Dr. Secretary, and make your report at once!

## HAMILTON COUNTY.

While we have had no official communication concerning the annual elections of the Chattanooga and Hamilton County Medical Society, we have in our possession a document which shows that the elections have been held, and that officers for 1922 were chosen as follows: President, Dr. Willard Steele, Chattanooga; Vice-President, Dr. E. Dunbar Newell, Chattanooga; Secretary-Treasurer, Dr. S. S. Marchbanks, Chattanooga.

The Hamilton county organization is a good one, and through weekly meetings with well arranged programs keeps up an active interest among the larger part of its members.

## KNOX COUNTY.

At the annual meeting of the Knox County Medical Society, the following officers were elected to serve for the year 1922.

President, Dr. J. J. Ellis; Vice-President, Dr. R. H. Newman; Secretary-Treasurer, Dr. Jesse C. Hill; Councilor, Dr. L. A. Haun.

Dr. Hill writes that the year 1921 was the best the Knox County Medical Society has ever had, but that the stakes have been moved even further out for 1922. This society has weekly meetings with a program fully arranged in advance and every member receives notice ahead as to what is on the program each week.

## WILSON COUNTY.

At the regular monthly meeting of the Wilson County Medical Society, held at Lebanon on December 7, 1921, the following officers for the new year were chosen: President, Dr. J. S. Campbell, Lebanon; Vice-President, Dr. J. R. Puryear, R. F. D., Lebanon; Secretary-Treasurer, Dr. W. S. Dotson, Lebanon.

Dr. Dotson, keeping up his record, was the first county secretary to report and sent in the names of twelve members for 1922.

## POLK COUNTY.

At the December meeting of the Polk County Medical Society in December. Dr. E. M. Akin, Copperhill, was elected President; Dr. T. J. Hicks, Copperhill, Vice-President; Dr. F. O. Geisler, Isabella, Secretary-Treasurer; Dr. W. Y. Gilliam, Copperhill, Censor; Dr. F. M. Kinsey, Ducktown, Delegate; and Dr. A. J. Guinn, Ducktown, Alternate.

Dr. Geisler, always one of the first county secretaries to report, sent in the names of eleven members on December 9, with annual dues and medical defense assessments for all of them.

## MAURY COUNTY.

Dr. M. A. Beasley, Secretary of the Maury County Medical Society, sent in the names of eleven active, and two honorary members, early in December for 1922 enrollment. All active members paid annual dues and medical defense.

The officers elected for 1922 are: Robert Pillow, Jr., Columbia, President; E. M. Ragsdale, Santa Fe, Vice-President; Dr. B. W. Woodward, Spring Hill, Second Vice-President; Dr. M. A. Beasley, Hampshire, Secretary-Treasurer; Dr. Wallace Wilks, Columbia, Censor; Dr. M. A. Beasley, Delegate; and Dr. W. K. Sheddan, Columbia, Alternate Delegate.

Dr. J. G. Williamson and Dr. H. A. Gant are honorary members of the Maury County Society.

## ANDERSON COUNTY.

Anderson County, through Dr. J. S. Hall, Secretary, was among the first to report for 1922, with ten members enrolled, all of whom paid medical defense.

Officers of the Anderson County Medical Society elected at the December meeting are: President, Dr. W. L. Carden, Andersonville; Vice-President, Dr. J. S. Taylor, Leinart; Secretary, Dr. J. S. Hall, Clinton.

## MONROE COUNTY.

The Monroe County Medical Society met at Madisonville on December 13, and elected officers for 1922 as follows: President, Dr. C. S. Jenkins, Tellico Plains; Vice-President, Dr. J. A. Hardin, Sweetwater; Censor, Dr. S. N. Penland, Madisonville; Secretary, Dr. B. W. Bagwell, Madisonville.

Dr. Bagwell immediately sent in his first report, with eleven members, all of whom paid medical defense, and promises more later.

## TIPTON COUNTY.

Fourteen 1922 members of the Tipton County Medical Society were reported for enrollment by the Secretary, Dr. J. F. Myers, on December 16. Dr. Myers remitted for annual dues and medical defense for all of the fourteen, and stated that more names will be forwarded. We have not the names of the new officers of this society yet.

## MARION COUNTY.

The Marion County Medical Society is a new unit of the Tennessee State Medical Association. Marion County formerly had a society affiliated with the state organization, but for several years has been unreported. Last September several of the doctors of the County, at a dinner given by Dr. J. W. Kirkpatrick at Richard City, considered plans for the re-organization of the society, and on September 13, 1921, at the office of Dr. W. R. Irish, at South Pittsburg, with other doctors of the county, these plans were matured, a Committee on Constitution and By-Laws being appointed, and other preliminaries attended to. On September 20, at a meeting in the office of Dr. W. L. Nichols, at Whitwell, organization was effected. Dr. J. W. Kirkpatrick was chosen for President, and Dr. W. R. Irish for Secretary, and the following named physicians, in addition to the two above named, were taken into membership: Drs. J. A. Price, Jasper; C. L. Hackworth and S. N. Anderson, South Pittsburg; J. L. Raulston, Richard City; G. M. Wampler and W. L. Nichols, Whitwell.

Dr. Irish, the Secretary of the new county society, was formerly secretary of the Campbell County organization, and is therefore no new hand at his job. To show that he knows how, he remitted to the central office on December 20, membership dues and medical defense assessments for all of the eight members of his society.

We heartily rejoice over the coming back into the fold of the Marion County Medical Society, and want to assure its members that they will all be most cordially welcomed to the eighty-ninth annual meeting of the State Association at Memphis in April.

## ROANE COUNTY.

The Roane County Medical Society met in the club room at the Harriman Hotel today, with seventeen members present, the largest number present at any regular meeting this year. The Harriman doctors were hosts to the visiting brethren at a luncheon. The following officers were elected: President, F. A. Neergaard, Harriman; Vice-President, G. E. Wilson, Rockwood; Secretary-Treasurer, W. W. Hill, Harriman.

There was a splendid spirit pervading this meeting, and each member present pledged his hearty support to his county society during the year 1922.

W. W. HILL, Secy-Treas.

Harriman, Tenn., December 20, 1921.

Dr. Hill remitted dues and defense assessment for the whole seventeen.

## SMITH COUNTY.

Dr. B. J. High, of Elmwood, has been secretary of the Smith County Medical Society for a long time, and throughout that long time has never failed to "come to taw" right when he was due. Promptly on the morning of the first day of the year his report came in with the names of ten members for 1922, and the promise of more to come. On January 7, one more name was sent in, and we confidently expect to hear from Dr. High again. Nine of the eleven reported members in Smith County paid their medical defense.

## WHITE COUNTY.

White county has always been nearly, if not quite, a 100 per cent county. For 1922 Dr. A. F. Richards, the secretary, has reported eleven members, with one more man left in the county to come in later. The society in old White missed only one meeting in the last year. For this year Dr. E. O. Jenkins, of Clifty, is President, and, of course, Dr. A. F. Richards, of Sparta, is again Secretary.

## BLOUNT COUNTY.

Dr. F. A. Zoller, Secretary of the Blount County Medical Society, is rather proud of the 1921 record of that organization. He writes: "We started the year with twenty members, received four, dropped two, and lost one through death. We now have twenty-one on our roll. Only one weekly meeting was missed during the year. Our average attendance was 11 plus. Twenty papers were prepared and read, five talks on assigned subjects were delivered, and we had six clinics." We agree with Dr. Zoller that the record is a good one, and we hold it up for an example for some of our other counties, with more doctors and better facilities for meeting, to observe and think about.

Officers for 1922: President, Dr. G. D. Le Quire, Maryville; Vice-President, Dr. W. B. Loving, Maryville; Secretary, Dr. F. A. Zoller, Maryville. Twelve members have already paid dues and medical defense.

## HENDERSON COUNTY.

Dr. S. T. Parker, Secretary of the Henderson County Medical Society, believes in saving ink and paper on reports, and so, as a general thing, sends in one report which includes all the members for the year.

On January 3 we received his report for 1922, with the names of twenty Henderson county doctors on it. We think Dr. Parker was just a little "flustrated," though, for he sent us a check for just twenty dollars too much, which we had to return for him to distribute among the members.

Dr. E. E. Waller, of Juno, is the President, and Dr. S. T. Parker, of Lexington, the Secretary of this live society, which maintains its membership to a top notch mark year after year.

## RUTHERFORD COUNTY.

The Rutherford County Medical Society, through its Secretary, Dr. J. A. Scott, of Murfreesbora, started the year with ten members, with dues and medical defense for nine, and dues without medical defense for one. Several of the old time members are not yet reported, but we expect othed communications from Dr. Scott, who usually gets them all in.

## GILES COUNTY.

Twelve names of members of the Giles County Medical Society were on the first report for 1922 forwarded by Dr. A. W. Dean, of Pulaski, the Secretary. Some of these names have been on the membership roll of the Tennessee State Medical Association for many years, and we hope that the good year 1922 will bring to their owners a great measure of peace and prosperity and of enjoyment of their fellowship in the association.

## CAMPBELL COUNTY.

Dr. L. M. Scott, of Jellico, is the new President of the Campbell County Medical Society, and Dr. F. A. McClintock, after a year's "lay-off" has been re-drafted into his old job as Secretary. Just to show that he has not forgotten how, Dr. McClintock reported fifteen members for 1922 enrollment during the first week of the new year, twelve of whom paid medical defense.

## SULLIVAN—CARTER—JOHNSON.

Dr. W. K. Vance, Jr., Secretary of the Sullivan-Carter-Johnson County Medical Society, reports sixteen members already paid up for 1922. Officers are: President, Dr. J. O. Woods, Elizabethton, Vice-Presidents, Dr. W. R. Booher, Bristol; Dr. C. C. Hacker, Elizabethot; and Dr. D. A. Swift, Mountain City; Secretary-Treasurer, Dr. W. K. Vance, Jr., Bristol; Censors, Dr. N. D. Robinson, Carter, and Dr. J. L. Cottrell, Mountain City.

This society believes that membership in it really means something, and that in coming into it, every member assumes real obligations which should be remembered. No man can secure membership who does not obligate himself to attend at least one half of the monthly meetings, and failure to do so will destroy eligibility for next year.

In addition to that, any member who fails to appear on the program when due is subjected to a fine of $2.50. Of course, valid excuses are accepted, but the society is the judge of what constitutes a valid excuse. We think we know a few men who couldn't get into Sullivan-Carter-Johnson Society in a hundred years, though they have been members in name of our state organization for a long time. Membership doesn't mean anything to them until they want something, and then how they proclaim their loyalty and recount their deeds of valor and service! The tri-county society is dead right—membership in an organization like ours should mean something sure enough, and the individual member does owe something to his society.

## LAUDERDALE COUNTY.

We had to look twice at the name signed to the Lauderdale County Medical Society report which came in on January 7. The name was Sanford alright, but it was not J. W. Sanford, the name which has so long been signed to secretarial communications from Lauderdale. The explanation was found in the body of the report, where it was shown that Dr. J. W. Sanford is now President, and Dr. W. V. Sanford, Secretary. Eleven names are reported from old Lauderdale, just a little less than half of the number we expected to have reported from that county. The new secretary talks just like the old one when he says "We expect to have every eligible doctor a member, as has been the case in most years heretofore."

This society had a good year in 1921.

## DAVIDSON COUNTY.

Dr. A. W. Harris, Nashville, was elected President of the Nashville Academy of Medicine and Davidson County Medical Society at the regular annual meeting held on January 2. Dr. D. R. Pickens was made Vice-President, and Dr. J. Owsley Manier, Secretary. This society had its largest enrollment in 1921, with nearly 200 members.

The annual banquet this year was a most delightful occasion—not one single doctor was allowed to make a speech. Dr. George Stoves, a preacher, and Judge Joel Fort, a lawyer-farmer-judge-lay-doctor, according to his own classification, were the speakers of the evening, and none who heard them regretted their selection.

The Nashville and Davidson County Society meets every Tuesday night at the Tulane Hotel, and a hearty welcome awaits any physician who may be in Nashville at the time of these meetings.

Hamilton and Knox counties are sending in partial reports every few days. Some of the secretaries of counties whose reports are referred to above have sent in additional reports since these notes were written, so in some instances the figures here given do not agree exactly with the numbers of names actually reported. More than one fourth of all the county societies were reported fully or partially before January 7, the date on which this "copy" went to the printer. It is to be hoped that all others will be reported at once.

## MISCELLANEOUS

### OUR MISTAKE.

In an editorial statement about the meeting of the Southern Medical Association at Hot Springs in the Journal last month, it was made to appear that Dr. W. H. Witt, of Nashville, was the chairman of the Section on Medicine. We knew, as a matter fact, that Dr. Bryce W. Fontaine, of Memphis, occupied that important position, and that he had discharged its duties, both with respect to the arrangement of the program, and to the direction of the work of the Section at the meeting, in a most splendid manner. It was an inexcusable error upon our part that the substitution of names occurred, and we hereby offer our unqualified apology for the mistake.

### ELUCIDATE—NOT ELIMINATE.

In the last sentence of the first paragraph of the paper on "Medical Jurisprudence" by Dr. S. T. Rucker, of Memphis, in the Journal for December, the word "eliminate" appears where "elucidate" had been written. There is much difference between the two words, and, of course, Dr. Rucker's intended meaning of the sentence referred to was very considerably changed by our printer's error. We are sorry it happened.

We could elucidate the above mistake. We wish to high heaven we could eliminate all mistakes.

The plan which Dr. Rucker proposes for elucidation of medico-legal problems in our courts and for the elimination of the pernicious forms and practices now in use is a most excellent plan.. It is destructive to the confidence and respect which the medical profession should command from the public and in courts of law, and it is frequently ruinous to the rights of contestants in courts, to have "expert" medical testimony delivered for a price in favor of one side or the other, depending on the size of the "price" and on the agility of the opposing counsel in getting to the "expert" or vice versa.

It's bad, too, when really competent physicians or surgeons can be "retained" in order that they may be called if their opinions suit the lawyers retaining them or not called if their opinions don't suit. "Retained," they cannot serve the other side, whose cause may be just.

We commend Dr. Rucker's article in the December Journal to our readers as being worth reading, and as containing suggestions which should be acted upon to the end that we may have procedures adopted in our courts of law with respect to medical questions through which the rights of litigants may be maintained, the interests of scientific medicine safeguarded, and professional ideals upheld.

### GROUP LIABILITY INSURANCE FOR MEMBERS.

The members of the Tennessee Medical Association who pay the modest sum of one dollar a year for the purpose are entitled to medical defense by the Association in suits which may be brought against them for alleged malpractice. The Association does not undertake to settle judgments which may be entered against members by courts in such suits. Many who pay the medical defense assessment feel that it is the part of wisdom to carry liability insurance with some good company too, so that they may have any possible judgments against them provided for. The cost of such insurance increased very rapidly within a few years, and some insurance companies withdrew their physicians' liability policies from the market.

Some months ago, Mr. S. F. Gill, of Nashville, representing the Hartford Accident and Indemnity Company, offered to the members of the Nashville Academy of Medicine a group policy, whereby the members of that society might secure protection at low cost. The Nashville Academy officially accepted the proposition offered, and many of its members have taken out the liability policies in the Hartford company. The Nashville Dental Society was offered the same plan and accepted. Then the proposition was submitted to the Tennessee State Medical Association, through its committee on Medical Defense, and to the Tennessee State Dental Association, with official acceptance by both.

So it is that members in good standing of the Tennessee State Medical Association are offered liability insurance at a very reasonable cost. The secretary of the Association was designated as trustee for these policies. Protection is given against malpractice, or alleged malpractice, except for acts committed while the assured or an assistant is "under the influence of intoxicants, narcotics or anesthetics," or while engaged in an unlawful act, or as the result of criminal malpractice, or the violation of law or ordinance. The insurance company, however, may not refuse to defend even when such claims are alleged.

Under this policy protection is given the assured against acts of assistants working under the direction of the assured, even though such acts are committed in his absence.

Operation of a hospital requires a separate policy, except that the assured is covered for his individual practice, in or out of the hospital.

Under the terms of the policy, available to our members, no claim may be compromised by the insurance company, except with the assent of the assured, or of a committee of three of our members, two to be selected by the member sued, and one to be selected by the company.

The cost of this policy with a limit of liability of $5,000 to any one person and of $15,000 for any one year is $18.75. A policy with limits of $10,000 and $25,000 may be had for $26.25, while with limits of $25,000 and $50,000 the annual premium is $31.50.

Inasmuch as some of the insurance companies charge from $30 to $75 for a policy which our members can secure from the Hartford for $18.75, it seems to us that all who want liability insurance should avail themselves of the opportunities offered by the group policy for which our committee on Medical Defense has arranged. Dr. S. R. Miller, the chairman of that committee, whose address is Knoxville, can give information to inquiring members, or they can communicate with Mr. S. F. Gill, Chamber of Commerce Building, Nashville, who is the representative of the Hartford Accident and Indemnity Co.

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## EPHRAIM McDOWELL.

In the Journal for December, there appeared a review of a book by Dr. August Schachner, of Louisville, on the life of Ephraim McDowell." In this book, Dr. Schachner has made a very earnest attempt to compile all of the known facts about the life and work of this great pioneer in American surgery. It is apparent that no pains have been spared to get historical data concerning Dr. McDowell's work, and concerning the claims of those who attempted to take to themselves the credit that was really Dr. McDowell's due for having rendered a service that stands out in the history of medicine.

Dr. Schachner has unquestionably established the validity of Dr. McDowell's claim to priority in ovarian surgery, and the facts that are presented in his book on McDowell's life and work should be in possession of every member of the medical profession in this country. It is a shame of the profession that such scant recognition of Ephraim McDowell's heroism and service to humanity has been made by the doctors of this land. It is true that the Kentucky State Medical Association has instituted a movement for a memorial to Dr. McDowell, but it is not enough that the profession of the one state alone, in which McDowell's great work was done, should pay tribute to his memory and to his accomplishments in surgery. There should be a great national movement, in which every physician in the land should be given full opportunity to participate, to establish a memorial that would be really in keeping with the great service that was rendered by the Kentucky pioneer.

In Dr. Schachner's book tribute is paid to the heroism of Jane Crawford, the woman upon whom McDowell's history-making operation was first done. It is altogether fitting that this tribute should have been paid.

We hope that Schachner's "Life of Ephraim McDowell," which is published by Lippincott and Company, will have a very extensive sale and reading among the doctors of the United States.

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## PUBLIC HEALTH INSTITUTE AT MEMPHIS.

January 23 to 28.

The Public Health Institute at Memphis to be held January 23-28, should be well attended by health officers, physicians in private practice, public health nurses and representatives of all the various groups which are at all interested in public health. The program that has been arranged is to be participated in by physicians and sanitarians whose names are well known throughout the United States. The subjects to be discussed cover a very wide range and there will be found something to interest everybody who will attend. All meetings will be held in Lindsley Hall, one of the group of buildings of the University of Tennessee School of Medicine. It is expected that Mississippi and Arkansas, our neighbor states, whose state health officers will be on the program, will both be well represented at the Institute.

Among those who will contribute to the program are Dr. J. T. Geraghty, of Baltimore, one of the best known urologists of the country, Dr. M. P. Ravenel, one of the foremost sanitarians this country has produced, Dr. J. H. Stokes, of the Mayo Clinic, Dr. Rachel Yarros, of Chicago, known throughout the land for her work in the interest of children, Dr. Joseph Goldberger, whose work on pellagra has made his name known all over the world, Dr. W. S. Leathers, of Mississippi, recognized as one of the best state health officers in the United States, Dr. Valeria Parker, Chairman of the Inter-Departmental Social Hygiene Board of Washington, D. C., Dr. C. W. Garrison, State Health Officer of Arkansas, who has put his state on the map with regard to progressive public health work, J. A. LePrince, who is the prince of sanitary engineers in this country, Dr. L. D. Fricks, in charge of the malaria work of the United States Public Health Service, Sanitary Engineer Van Hovenberg, whose work with the Rock Island Railroad Company has attracted attention everywhere, Dr. Wm. Krauss, Dr. J. J. Durrett, Dr. Marcus Haase, Sanitary Engineer A. W. Fuchs, and others of our own state.

The United States Public Health Service, the University of Tennessee School of Medicine, the Memphis and Shelby County Medical Society, the Memphis City Health Department, and the Tennessee State Board of Health are all actively interested in the Memphis Institute, which has been arranged for in the hope that it will render a worthy service in the interest of public health in this state. In behalf of all the agencies co-operating a most cordial invitation is hereby extended to all who will to attend the Institute.

## BIRTH RATES FOR 1920.

The Bureau of the Census has announced the birth registration figures for 1920 in the states which have been admitted to the Registration Area for Births, including twenty-three states and the District of Columbia. The estimated population for this area on July 1, 1920, was 63,659,441, or 59.8 per cent of the total population of the United States. The total number of births recorded for 1920 was 1,508,874, and the birth rate per 1,000 population was 23.7. The rate in 1919 was 22.3, which was very considerably below the rate (25) for 1916, the year just preceding the entrance of the United States into the war.

Old North Carolina had the highest birth rate for 1920 with 31.6, while Oregon, with a rate of 18.9, had the lowest. The old North State has always helped mightily to populate the country and kept up her record in 1920. California, the land of fads and sunshine, was very slightly behind Oregon in the race for the lowest rung of the ladder, her birth rate for 1920 having been established at 19.3.

Tennessee has not yet been admitted to the registration area for births, but it is hoped that she will be admitted during the next year. Our state birth rate for 1920 was 21.7, a rate which was exceeded by those of eighteen of the states in the registration area, though in most instances these rates were very little higher than Tennessee's. The indications are that the 1921 birth rate for Tennessee will be very considerablly higher than that of 1920, and it is hoped that the improvement in birth registration will be maintained to that degree which will enable our state to be numbered with the elect in the birth registration area of the United States. It is confidently believed that if all Tennessee's births could be registered, as they should be, that our birth rate would be close to the highest in the land. Everybody concerned should give all the help possible toward making the record complete.

## HOSPITAL IMPROVEMENTS IN NASHVILLE.

The Nashville City Hospital, under the direction of a new Board of Commissioners, has been thoroughly renovated from top to bottom, the whole plan of its operation has been changed to comply with modern hospital requirements, and the institution has been given a Class A grading. On December 28, the Board of Hospital Commissioners invited the Nashville public to inspect the hospital and their invitation was accepted by so many that the halls of the building were thronged with interested citizens throughout the afternoon. In the evening a dinner was served to the Mayor and City Council of Nashville, and about sixty invited guests, at which a number of splendid addresses were made. Among these was one by Dr. Perry Bromberg, one of the first to serve as interne in the Nashville hospital after the present building was put into use, who recalled the fact that the first hysterectomy ever performed in Nashville was done during his service in the Nashville City Hospital. Dr. Bromberg's story of the old days of hospital service in Nashville and his comparisons with present day service was intensely interesting, and depicted in a most impressive manner the wonderful progress that has been made in hospital management and in the practice of medicine and surgery.

The Nashville City Hospital has had its "ups and downs," but it is evident that those who have its affairs in charge mean to make the institution serve its intended purpose to the very limits of its possibilities for service. The house and its equipment have been thoroughly gone over, and are shining with newness and cleanliness. A thoroughly competent staff has been appointed with the very distinct understanding that every member will render prompt service. An entirely new system of records has been installed, and will be rigidly maintained. The number of nurses in training has been increased and additional supervising nurses employed. An adequate interne corps has been provided. Diet kitchens, pharmacy and other necessary facilities have been improved. The children's ward has been enlarged. Other improvements have been made, and Nashville now has a really good city hospital, but the Board of Commissioners have announced that they are not through yet. A home for nurses will soon be under construction. New operating rooms will be provided in the near future. A communicable disease ward is contemplated.

The Board of Commissioners of the Nashvile City Hospital is made up of the following named physicians and citizens: Dr. R. E. Fort, Chairman; Dr. W. Y. Haley, Dr. W. C. Dixon, Secretary; Dr. T. D. McKinney, Mrs. Jno. M. Kenney, Mr. John Trotwood Moore, and Mr. Lytton Alley. Dr. M. B. Davis is Hospital Superintendent. These have done a splendid work, and Nashville can now take a real pride in her hospital.

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The new Vanderbilt Hospital, which occupies the building on the corner of Fifth Avenue and Elm Street, used for teaching purposes for a number of years, was thrown open for the inspection of the public on December 28. Several hundred visitors went through the hospital, and were greatly delighted with what they saw—one of the best appointed institutions of its kind in all this section. It was really difficult for those who were familiar with the building to realize that such changes as have been made were possible. From the ground floor, used for the out-patient department, to the fourth floor, where the beautiful operating rooms are located, the appointments are well nigh perfect. The four main wards are simply fine from every standpoint, and the lesser wards are none the less fine. The operating rooms, the x-ray laboratory, the pathological laboratory, the diet kitchens, the electric elevators, and, in short, the entire hospital is arranged and equipped in keeping with the very best of modern hospital arrangement and equipment. One hundred and ten patients can be cared for under ordinary conditions, and in emergencies it appears that this number can be materially increased without undue crowding.

The Vanderbilt Hospital is conducted by a hospital staff, with a superintendent, house surgeon, and other needed officers and assistants, and with very strict and comprehensive rules governing the whole service. The staff is, of course, composed of designated members of the teaching corps of the Vanderbilt School of Medicine. Dr. W. H. Leake is in direct charge of the hospital.

It is a matter for great pride upon the part of the many friends of Vanderbilt University that this splendid new hospital has been provided for its School of Medicine to enable its faculty to fully meet the needs of modern teaching requirements, and, at the same time, offer the best of treatment to those who need the ministrations that such an institution can provide.

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The Nashville Protestant Hospital has begun the construction of a large addition to its present plant. The Journal is not advised as to details, but our information is to the effect that the capacity of the Protestant Hospial will be practically doubled when the new wing has been completed, and that the plans adopted call for the very best that is known of hospital construction and equipment.

The Protestant Hospital has been in existence for only a few years, but has thoroughly demonstrated that it is a needed institution;

has won for itself a reputation as a well run hospital, and has established a record of splendid service. Its staff is composed of some of Nashville's leading physicians and surgeons, and its laboratories are all in most competent hands.

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With the splendid improvements already made or now under way in the hospitals above referred to, and with St. Thomas, The Woman's Hospital, Barr's Infirmary, Dozier's Infirmary, Hubbard Hospital (for Negroes), and with City View Sanatorium, Central Hospital, and others for special classes of patients, Nashville offers really splendid hospital facilities for its own people and for a large surrounding population.

## MEDICAL DEFENSE FOR MEMBERS.

The Journal is informed by Dr. S. R. Miller, Chairman of the Committee on Medical Defense of the Tennessee State Medical Association, that more of our members paid the annual assessment for medical defense in 1920 than in any previous year. Gradually but slowly the benefits of medical defense for members have won the favor of our society, until during the past year nearly three-fourth of all members enrolled have paid the small annual assessment necessary to secure the protection offered through this feature of the work of the Association. This year EVERY member should pay his dollar. Even though the lightning doesn't strike any particular one, all should be willing to help provide protection for the rest.

## OUR EIGHTY-NINTH ANNUAL MEETING.

The eighty-ninth annual meeting of the Tennessee State Medical Association, will be held in Memphis on the second Tuesday of April, 1922. Eighty-ninth! Think it over. It means something for a society of scientific men to weather the storms of eighty-nine years. Think of the wars that have been fought, with all their disorganizing effects, since our old society came into being and remember that she has lasted through them all. Think of the interior disturbances that have arisen at long intervals, in which individuals and groups have struggled for the ascendency. Think of the tremendous changes that have taken place in medicine, with respect to its teachings and its practice. Think of all the fads and fakes that have arisen to attack, have shot their bolts and sunk into oblivion. Think of the men that have, because of their achievements in medicine, made Tennessee and her medical organization known to the profession in all lands. Think of the splendid service that this association has rendered as an organization. It means something to be a member of the old Tennessee State Medical Association, which has been an active working body for many years longer than the memory of even the oldest physician now living in this state runs back.

Memphis is an ideal city for a meeting place. It is a city with splendid hospital facilities and with a medical school. It has fine railroad facilities and good hotels. The medical profession of Memphis and Shelby county is composed of a fine body of progressive physicians. The medical society is by far the largest in the state, and is a real, going society. Memphis is a big town and a good town with all the interest of a live modern city. Any doctor in Tennessee can get to Memphis within twenty-four to twenty-eight hours—and he can get away when he wants to go. There should be a great crowd of doctors at our annual meeting.

There will be a new feature to the program this year. Heretofore we have had nearly three days of constant grind of papers. This year the first day will be given over to clinics in the Memphis hospitals, and there are going to be some splendid clinics, too. These will all be arranged for by the Memphis and Shelby County Medical Society, and the arrangements will be so complete that the schedules can be, and will be adhered to. There will be medical clinics, and surgical clinics, and orthopedic clinics and ophthalmologic clinics, and otologic clinics, and neurologic clinics, and pediatric clinics, and urologic clinics, and dermatologic clinics, and gynecologic clinics, and venereal disease clinics, and, if the old Memphis order is followed, there will be a gastronomic clinic, which will not be held at the hospital. And if we have forgotten any kind of clinic, there will be that, too.

The Section on Pediatrics will be in evidence for the first time at the Memphis meeting. Dr. Isaac Abt, one of the foremost pediatricians of the country, will be on the program as the guest of the Section and the Association. The program of this Section will be a part of the general program.

The Section on Ophthalmology and Otolaryngology, which has distinguished itself by succeeding in a very remarkable way during the few years of its existence, should have its best performance at Memphis. The word "performance" is used advisedly, but not in any light sense. This section has really performed its duty to itself and to the Association of which it is a part every year since it was organized, and the performance has been characterized by earnest and enthusiastic work upon the part of its members. This section will also be represented on the general program.

The general program will be made up of contributions by members of the Association. Any member who thinks he has something worthy of presentation is entitled to a place on this program, and no member should seek a place who does not intend to try his earnest best to present something worth while. It is hoped that all of those who wish to present a paper will send in their titles to the Secretary as early as possible.

Councilors, county secretaries, committeemen, delegates and all others upon whom duties devolve in connection with the affairs of the Tennessee State Medical Association should have all their matters in hand at the earliest possible date, and should be quite ready to get right down to business when the time has arrived for the meeting. All matters presented to the House of Delegates or to the general body, as well as to the individual sections, should have been carefully arranged for presentation in order that they may be considered promptly and handled intelligently. A list of all officers and committeemen will be found in this Journal.

We are right now notifying you that we mean to have a sure-enough good meeting at Memphis in April. Get ready and go.

## VENEREAL DISEASE MANUAL.

The State Board of Health has on hand a number of copies of "A Manual of Treatment of Venereal Diseases." Any physician in Tennessee who wishes to have one of these manuals can get it by writing to the State Board of Health, Nashville, and asking for it. This is the manual originally prepared for the use of the Army Medical Department, to which has been added a chapter on gonorrhea in women.

## NOTES AND COMMENT.

Dr. Robert Sullivan, for several years associated with Dr. Hilliard Wood, has opened an office in the Doctor's Building, Nashville, for practice limited to diseases of the eye, ear, nose, and throat.

Dr. Carrol C. Turner, of Memphis, was married on January 10, to Miss Marguerite Randolph, also of Memphis. Congratulations and all good wishes are hereby extended to Dr. and Mrs. Turner by the Journal.

The Ophthalmic Section of the St. Louis Medical Society announces a course of lectures in Opthalmology, to be given in St. Louis during the month of February, by Dr. Ernest Fuchs, of Vienna. Information may be had by writing the Fuchs' Lecture Committee, St. Louis Medical Society, 3525 Pine Street, St. Louis.

The new Methodist Hospital at Memphis has been practically decided upon as one of the plants to be bought by the Government, and used for the hospitalization of ex-service men under the direction of the Soldiers' Bureau.

The proposed Gorgas Memorial will consist of "The Gorgas School of Sanitation," in Alabama, the state of his birth, and "The Gorgas Institute of Tropical Medicine," in Panama, where Dr. Gorgas' greatest triumph in sanitation was accomplished. Funds for the establishment of the memorial, except such as may be contributed by certain governments, will be secured through private donations.

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## PROPAGANDA FOR REFORM.

**Quinidin in Heart Disease.**—Quinidin has suddenly leaped into prominence because of its striking effects in certain forms of cardiac irregularity. To see a heart that has been constantly irregular for one or two years because of a fibrillating auricle lose its lawless and rapid beat within a few hours under the influence of this drug and resume normal rhythm and rate and maintain these for months, must attract the attention of all. The conclusions of the few clinicians who have thus far reported their investigations are in remarkable agreement as to the fact that in about half of the cases of auricular fibrillation, Quinidin is capable of restoring to the sino-auricular node the control of the heart, so that, for a time at least, the working of the heart is normal. However, while those who report on the effects of Quinidin are fascinated by the possibilities of the application of this drug in medicine, they are wisely conservative in their statements and frankly admit that much is yet to be learned concerning its proper use. It is to be hoped that the favorable reports will not lead to the indiscriminate use of the drug in every type of irregular and rapid type of heart (Jour. A. M. A., Dec. 3, 1921, p. 1822).

**Cod Liver Oil in Rickets.**—While there is a growing belief that cod liver oil is of distinct therapeutic value in rickets, many of the experiments along this line are not sufficiently objective to be entirely convincing. Now, however, Park and Howland have furnished the direct ocular proof of the effects of cod liver oil on rickets which roentgenograms afford. The results in many cases have ben so consistent that they feel justified in stating definitely that cod liver oil brings about a change in the bone which, if the diet is not too faulty, amounts to complete cure (Jour. A. M. A., Dec. 31, 1921, p. 2122).

## TUBERCULOSIS IS INCREASING AMONG ADOLESCENT GIRLS.

Despite the very pronounced decline in the mortality from tuberculosis which has taken place during the last decade, the disease is actually increasing among girls between the ages of fifteen and twenty years. This is shown clearly by figures compiled by the Metropolitan Life Insurance Company which relate to the ten-year period 1911 to 1920. Adolescent girls constitute the only group in which the tuberculosis rate has not declined.

The Company's compilations show that during the six-year period 1911 to 1916, the average annual death rate from tuberculosis among white girls, aged 15 to 19 years and insured in its Industrial Department was 144.5 per 100,000; by 1919 this rate had increased slightly (to 145.8), and in 1920 it rose further to 151.5. These increases, it is true, are small; ordinarily, they would not be commented upon. They become very important and significant, however, by virtue of the strong contrast which they present to the trend of tuberculosis mortality among females and males of other age groups. For example, women from 20 to 24 years had an average death rate from tuberculosis of 238.0 per 100,000 during the six-year period 1911 to 1916; by 1919, this had decreased to 228.4; in 1920, there was a further and very substantial drop to 213.8. For insured white women aged 25 to 34 years a death rate of 252.2 was recorded for the six-year period 1911-1916; by 1919, the figure had declined to 214.3 and in 1920 there was a further drop to 190.5.

During the same time that the tuberculosis death rate of adolescent white girls was increasing 5 per cent, the mortality among adolescent white boys was decreasing 25 per cent.

As early as March, 1921, we called attention in this Bulletin to the increase in tuberculosis among young girls as the one anomaly in a situation where favorable developments were in evidence for every other age group. Since that time the attention of students of the tuberculosis problem has been directed more or less toward this phase of the situation. We have not, as yet, heard any satisfactory explanation of the causes which have brought about the comparatively high tuberculosis death rate among adolescent females. One suggested explanation that present-day fashions in dress have much to do with it is obviously unsound. We must seek other facts to explain the observed differences between death rates of females of other age periods and of those between 15 and 20. So far as w know, there are no fundamental differences in housing conditions and employment surroundings for females of the two age groups. Certainly there is no reason to believe that whatever changes have occurred in these important matters apply more to any one group than to the others. Further research into this important subject is called for, and we would suggest that more careful attention be given to the physiological aspects of the question. It would be well to find out whether the increasing number of young girls who have entered industry in recent years at these adolescent ages (when physiological changes are more pronounced among them than among boys) is having any effect in bringing about the increased death rate.—Bulletin of Metropolitan Life Insurance Company.

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**Endocrinology and Pseudo-Endocrinology.**—R. G. Hoskins, professor of physiology, Ohio State College of Medicine, pleads for a greater degree of discrimination on the part of physicians in evaluating not only proper data but also the various agencies either seeking support in, or exploiting, this field. The latter aspect of the situation deserves special emphasis. Those who purpose acting as purveyors to the medical profession must accept the status of purveyors. The physicians or laboratory investigator of the medical sciences shall not exploit for commercial gain the result of his studies. At the present time a commercial campaign is being carried on by a "laboratory" purporting to specialize in endocrine products. The mail of physicians is flooded with a series of post cards, each card recommending and suggesting the use of the proprietary product of this self-styled laboratory for conditions ranging from eczema to epilepsy, and from obesity to tuberculosis. This free postcard advice is reenforced by a reference to "monographs" and a trade journal in which scientific medicine is systematically belittled as unpractical. This advertising campaign is ostensibly under the supervision of the enterprising Mr. Hyde, the merchant of the firm. Mr. Hyde is a profound admirer of the eminent Dr. Jekyll, the medical director (Jour. A .M. A., Nov. 5, 1921, p. 1499).

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**Schick Test.**—The entire absence of positive reactions to the Schick test in about one dozen children should lead to the suspicion that the particular lot of toxin used is inactive. It is not unlikely that toxin in small outfits may deteriorate after leaving the manufacturer (Jour. A. M. A., Nov. 12, 1921, p. 1594-.

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**Iodine and Goiter.**—According to Marine, if the iodin store in the thyroid is maintained above 0.1 per cent, no hyperplastic changes and, therefore, no goiter can develop. The studies of Marine and Kimball show that simple or endemic goiter can be prevented by the administration of from 3 to 5 mg. of iodin twice weekly, over a period of a month and repeated twice yearly. Is it not time for the medical profession to give special attention to this? If prevention of goiter is good preventive medicine, it is better preventive surgery (Jour. A. M. A., Nov. 12, 1921, p. 1574).

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**Potassium Mercuric Iodide.**—Potassii Hydrargyri Iodidum.—A complex salt, $K_2Hgl_4$, formed by the interaction of one molecule of mercuric iodide with two molecules of potassium iodide, containing about 25 per cent of mercury. Potassium mercuric iodide is used for the same purposes as mercuric iodide, over which it has some advantages because of its solubility. As a germicide, it is effective since it does not coagulate albumin; however, there seems to be no work to show how much the activity is decreased when an excess of potassium iodide is present. As a germicide, potassium mercuric iodide is used in concentrations of from 1:100 to 1:10,000. Solutions of potassium mercuric iodide may be prepared: (1) by dissolving one part by weight of mercuric iodide and one part by weight of potassium iodide in a small amount of water and then diluting to proper strength; (2) by dissolving potassium mercuric iodide in water containing potassium iodide, equivalent to about 20 per cent by weight of the potassium mercuric iodide used (Jour. A. M. A., Dec. 17, 1921, p. 1971).

## BOOK REVIEWS.

EPIDEMIOLOGY AND PUBLIC HEALTH. Volume 1—Respiratory Infections. By Victor C. Vaughn, M.D., L.L.D., Emertius Professor of Hygiene in the University of Michigan, Chairman of the Division on Medical Sciences of the National Research Council; assisted by H. F. Vaughn, Dr. P. H., and G. T. Palmer, Dr. P. H., Detroit. C. V. Mosby Company, St. Louis, Cloth $9.00.

This is the first volume of a three-volume work and is devoted to a consideration of respiratory infections from the standpoint of the epidemiologist, as its author interprets that term. It is distinctively a Vaughn production, which fact should commend the book most favorably to the profession of this country. Dr. Vaughan has some rather unique original ideas about epidemiology and epidemiologists and certainly he has a very broad conception of the general subject of public health. He is peculiarly fitted for the writing of a text and reference book dealing with communicable diseases and with the problems of public health as they exist in the United States. An accomplished worker in the laboratory, a doctor with years of practice to his credit, a medical officer in the U. S. Army in the Spanish War, and in charge of the work of the Division of Medical Sciences of the National Research Council, an officer of the U. S. Army in the great world War, and a persistent observer in all the Army camps in this country during the great War, and, above all, a man with a very sincere interest in public health and one whose long life has been spent in earnest labor for the benefit of humanity, certainly Victor C. Vaughn has earned the right to write a book like this one, and an unusual book it is. It is just "different," that's all. It has the scientific needful, but it also has more than that. It has individuality and that of a delightful sort. There's no dry-as dust page in it. The first chapter is the introduction," in which historical references are made in a very charming manner and in which Dr. Vaughn presents some of his own views with respect to epidemiologic study. The second Chapter is on "Protein Diseases," which Vaughn chooses to call "Albuminal Diseases." The third Chapter is on "Pollinosis," under which term are included "certain conjunctival, nasopharyngeal, and tracheobronchial congestive and catarrhal conditions which are due to the inhalation of pollen and other particulate protein containing bodies." Chapter IV is on "The Acute Coryzas," Chapter V on "The Pneumonias,' and other chapters take up the various infectious diseases, with especial attention given to influenza and tuberculosis in the two which deal with these conditions. The last chapter treats of "Weather and Disease." A pleasing feature of the book is to be found in the avoidance of a multiplicity of ultra-scientific terms and phrases. Dr. Vaughn presents his own views on infection, but he also makes very careful presentation of the conceptions of other workers and of generally-accepted theories.

We consider this work a very distinct contribution of the literature of the day and unhesitatingly commend it to those who may chance to see this reference to it, believing that all who are interested enough in the subjects of which it treats to take it up will find it interesting and profitable reading, as well as being entirely worthy of careful study.

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CLINICAL DIAGNOSIS.—A text book of Clinical Microscopy and Clinical Chemistry. By Charles Phillips Emerson, A. B., M. D., Professor of Medicine, Indiana University School of Medicine, Indianapolis; formerly associate in Medicine in Johns Hopkins University. Fifth Edition, entirely rewritten and reset. J. B. Lippincott Company, Philadelphia.

This is a new old book, in that the last preceding edition was issued nearly ten years ago and in that this, the fifth edition, has been entirely rewritten to include methods and measures that have come into established use in those years. It is a book of a kind that every physician should have at hand and which any physician who does any of his own laboratory work must have at hand. The clinical methods described are those which have demonstrated their value by practical every-day use in the hands of the author and his associates, so no room is wasted on pet schemes of the laboratory short-cutter and the trimmer.

RINGWORM, AND ITS SUCCESSFUL TREATMENT.—By John P. Turner, M. D., Medical Inspector of Public Schools, Philadelphia. F. A. Davis Company, Philadelphia. Net, $1.00.

Dr. Turner, in this pocket size book of some fifty pages, discusses ringworm, starting with the history of the disease and going through the pathology, diagnosis, differential diagnosis, method of transmission and on to a description of the method of treatment which he has devised for which he claims abundant success in producing a cure.

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**Essentials of Laboratory Diagnosis.—By Frances Ashley Faught, M. D., Former Director of the Laboratory of the Department of Clinical Medicine, etc., Medico-Chirugical College, Philadelphia. Seventh edition, revised. 523 pages with eleven full page plates (4 in color) and 78 text engravings. F. A. Davis Company, Philadelphia, Pa., $4.50 net.**

As stated in the author's preface in the seventh edition, a clinical laboratory is no longer a simple collection of reagent bottles, test tubes and alcohol lamps. With this idea, Dr. Faught has given good, clear, descriptions of instruments, etc., used in present day laboratory practice, together with their care and mechanism. The tests and methods described are such as have proven themselves practicable and dependable.

The text is well arranged, the color is exceptionally good, and text engravings well chosen.

The book is recommended for its clearness and the amount of practical and useful knowledge contained.

In the last chapter an attempt is made to suggest a standardization of descriptive terms used in laboratory practice. This is to be commended.

The book is thoroughly revised and brought up to date in all parts. C. B. C.

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THE PRACTICAL MEDICAL SERIES. Volume V, Gynecology and Obstetrics. Series 1921. The Year Book Publishers, Chicago. Cloth $1.75 Per year (eight volumes) $12.00.

This is one of the series for 1921 of the well known "Year Book," one of the best of several reviews of medical literature. This particular volume is edited by Dr. E. C. Dudley and Dr. Joseph B. DeLee, Dr. Dudley on gynecology and Dr. DeLee on obstetrics, and they have gleaned the fields very thoroughly, reviewing a large number of important papers which have appeared in the journals of this and other countries.

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MEDICAL AND SURGICAL REPORTS OF THE EPISCOPAL HOSPITAL. Vol. V. Press of Wm. J. Dornan, Philadelphia.

This is the fifth volume of the Reports of the Episcopal Hospital of Philadelphia and is the first that has appeared since 1916, the war having interfered with the issuance of the volumes for the respective years which have intervened. The editor, and the greatest contributor, is Dr. Astley P. C. Ashurst. There are approximately sixty papers based on work done in the Hospital by members of the staff and these papers cover a wide variety of medical and surgical subjects.

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THE LIFE OF JACOB HENLE.—By Victor Robinson, M. D., New York. Medical Life Company, New York. Price $3.00.

Jacob Henle was one of the really great producers in the field of investigation in modern scientific medicine, but, as with many others who have made great contributions to medcal knowledge, little is known of the man and his work by the general run of the physicians of the day. Dr. Robinson's biography is the first in the English language of this truly remarkable man, who brought to us a great deal of what we know concerning many of the fundamentals of modern medicine. Henle's work on the skin and his studies in pathology and bacteriology established his place in the forefront of the scientific investigators of his time and his writings on subjects not strictly scientific won for him great renown. Dr. Robinson's story of his life and work is written in pleasing style and is of great value as medical history.

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THE SURGICAL CLINICS OF NORTH AMERICA.—October, 1921, Val. 1, Number 5. Published Bi-monthly. W. B. Saunders Company, Philadelphia. $12. per year.

This is the Mayo Clinic number, with contributions by twenty-three of the personnel of the Mayo organization, and has the same general excellence that characterizes all the scientific publications emanating from the great Rochester institution.

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# DIVERTICULA AND DIVERTICULITIS OF THE SIGMOID.*

By David R. Pickens, M. D., Nashville.

Acquired diverticula are found more frequently in the sigmoid than any part of the intestinal tract, although fairly common throughout the large intestine. This condition exists more commonly and more frequently gives rise to more clinical symptoms than we suspect.

The first authentic case that I have been able to find was reported by Sydney Jones, in the Transactions of the London Medical Society in 1858. However, the first research of any note was done by Graser in 1898, when he began his study of the intestinal tract at autopsy. Sudsuki, Beer and Telling have since that time added some very interesting literature on the subjeject. A number of men have reported cases from time to time, probably the largest number being reported by W. J. Mayo in 1916. Telling and Gruner in 1917 discussed this subject fully in the British Journal of Surgery (1916-17, Vol. 4, Page 468) and were able to collect 324 cases of intestinal diverticula from the literature.

These diverticula have a tendency to enter the appendices epiploicae, and the gut, being laden with fat, makes them difficult to detect. Their aperture being small, the rugae of the mucous membrane tends to conceal them. Therefore in an operative field they are likely to escape notice; also the pathological process is liable to be so extensive that the true nature of the case is concealed. In Mayo's 42 cases of diverticula of the intestine, 36 were in the sigmoid. The physiological role of the sigmoid is thought to be the reason for their frequency. It is the place of longest retention of fecal contents, hence pressure from within the gut tends to their production.

Drummond in reporting his investigations concerning the cause of diverticula, states that he believes the term "diverticulum" should not be used at all, but should be reserved for such congenital conditions as Meckel's diverticulum, and suggests the term "sacculi." He believes all such pouches are acquired. Klebs emphasizes the fact that these diverticula or sacculi occur in fat people. Drummond believes they are more apt to occur in people who have been fat and have lost considerable weight. Most writers think the most important factor is an inherent weakness in the bowel wall. It has been shown that these diverticula occur between the mesenteric and lateral longitudinal muscular bands, usually at the site of the perforation of the blood vessels. No doubt the appendices epiploicae play a great part, as it has been shown that this fat is continuous with the subserous fat.

Diverticula vary greatly in numbers. From one to two hundred have been found in a single case. However the average is from 10 to 20. Their sizes vary from that of a pea to that of a hazel nut, or larger. The apertures are small, and unless ulceration is present, may not be detected by inspection of the mucosa, on account of being concealed by the rugae. The shape as a rule is round or ovoid; some are pedunculated. The usual content is fecal matter, which may be in the form of fecoliths. Occasionally they contain foreign bodies.

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*Read at Annual Meeting of Tennessee State Medical Association at Nashville, April, 1921.

**Etiology.**—They are most frequent past middle life. In 80 cases of diverticula of the large intestine the average age was 60 years. Of those giving symptoms, 47 in number, the average age was 55. In Mayo's 42 cases the average age was 53 years, the youngest 27, and the oldest 73. Telling reports one case in a person 22 years of age. Fieldler described a well marked case at 22 years. One case of diverticula with secondary inflammatory change has been reported in a child five years of age (Ashhurst). This is the only case that I was able to find reported as occurring in a child.

They are about twice as frequent in males as in females. In 81 English cases, males were affected in 65.4 per cent, females 34.6 per cent. In Mayo's 42 cases, 66.6 per cent were males and 33.4 per cent were females.

Obesity plays a part, especially in those who have lost a great deal of weight as a result of disease. About 25 per cent of these patients suffer from chronic constipation The sigmoid, being the place of longest retention of fecal contents, is subjected to pressure and gas from within, to the formation of erosions or weakness at given areas. The attachment of the appendices epiploicae being at a weakened area, and these, particularly, fat laden, produce a certain amount of pull on the intestinal wall with congestion of the blood vessels at their point of entrance. In those of advanced age or those having suffered long periods of illness, causing great loss in weight, there will be diminished muscular strength, or change in the resistant powers of the gut.

**Symptoms.**—These diverticula are of but little pathological significance until they begin some of the various secondary pathological changes. They produce no symptoms and call for no treatment other than for the prevention of some if the secondary changes. The possibility of them causing trouble depends upon three factors: First, being formed by pressure from within they tend to enlarge. Second, they tend to harbor fecal or other harmful content; and third, they tend to undergo various secondary pathological changes. Secondary pathological change is brought about by the following agencies (Lynch):

1. The thinning of the diverticulum wall.
2. The ulceration of the mucosa.
3. The perforating action of the retained concretion.
4. The presence of micro-organisms and their toxins.
5. Inflammatory reactions of varying types and degree.

Note the great resemblance between these agencies and those contributing to bring about the various types of appendicitis. The inflammation may either subside, prove recurrent, lead to local abscess formation, or give rise to acute peritonitis.

The chief secondary pathological changes are:

1. Infection of the general peritoneal cavity from thinning of the sac walls without perforation.
2. Acute or gangrenous inflammation of the sac—diverticulitis.
3. Chronic proliferative inflammation with thickening of the gut wall and subsequent stenosis of the bowel—peridiverticulitis.
4. The formation of adhesions between the sigmoid loop and other viscera, especially the small intestine and the bladder.
5. Perforation of the diverticula, giving rise to acute general peritonitis, local abscess; submucous fistula of the gut wall; and fistulous communication with other viscera, namely the bladder.
6. The lodgment of foreign bodies in the diverticula.
7. Chronic mesenteritis of the sigmoid loop.
8. Local chronic peritonitis.
9. Metastatic suppuration.
10. The secondary development of carcinoma.
11. Perforation into a hernial sac.

Some of these pathological changes are of but little importance. However, I wish to comment upon some of the most frequent

Infection of the general peritoneal cavity may occur without actual perforation of the sac. A low form of inflammation may exist in one or many of these sacs for some time, and then suddenly a more active or acute, even gangrenous inflammation may develop in one or more of the sacculi. In this way we have a reproduction of what occurs so often in the right iliac fossa in appendicitis.

In acute diverticulitis the main lesion is in the mucosa and we have acute and gangrenous inflammation, perforation and septic peritonitis; while in peridiverticulitis we have the fibrous hyperplasia resulting from bacteria, or more probably their toxins soaking through the mucosa into the submucous coat and without there being of necessity any ulceration of the mucosa itself. Of all the secondary changes, peridiverticulitis is probably the most frequent, and when present in any marked degree it is the most obvious, because it leads to a definite tumor formation. The true nature of this condition was overlooked until 1898, when Graser first described it. This proliferative inflammation tends to surround the rows of diverticula and the bowel with a thick mass of fibrous tissue. In some cases the wall has been two inches thick in places. The whole circumference of the bowel is involved for varying distances (2 to 8 inches as a rule); and besides giving rise to definite tumor formation, leads to a slowly progressive stenosis.

The diverticula are buried in a mass of fibrous tissue which frequently becomes adherent to adjacent viscera. This leads to one of the most important results—**mimicry of cancer.** It is not surprising that the surgeon on opening the abdomen and seeing such a tumor of the sigmoid should regard it as carcinoma. Specimens of this type have been found in museums, labelled "Carcinoma." If a specimen is cut into immediately after removal, the mucous membrane is different from what is found in most malignant strictures. In carcinoma there is usually ulceration of the mucous membrane. In most cases of peridiverticulitis ulceration of the mucous surface does not occur. Owing to the contraction of the gut the rugae are more marked, effectually hiding the narrowed orifices of the diverticula, which are hard to find with a fine probe. Therefore stenosis and tumor formation in the sigmoid does not always mean cancer. On the other hand, cancer may develop or be secondary to a diverticulum or a peridiverticulitis. In Mayo's 42 cases, 13, or 31 per cent, were cancerous developments in the presence of diverticula. Thirty per cent of these cases show palpable tumor.

Mayo classifies diverticula into four groups, as follows:

1. "Self limiting diverticulitis and peridiverticulitis."—This group includes the obese middle aged persons who come with an acute sensitive tumefaction in the left iliac fossa. The inflammation is due to the irritation of fecal concretions and other contents in the narrow-neck sacs, which cause obstruction, edema, and infection with penetration of bacteria or their toxins to the peritoneal surface. There is a tendency to relapse quite similar to relapsing appendicitis, and several such attacks may occur before one of the more serious conditions results.

2. "Diverticulitis and peridiverticulitis with formation of abscess resulting in entero-vesical entero-cutaneous and other fistula."—This group includes those cases with infection, which develop peritonitis with abscess formation, or the results of infectious processes which connect the diseased colon with the cutaneous surface, the bladder, or adjacent intestine, lead to the necessity of surgical interference. If an abscess forms, it should be drained, but no effort should be made to remove the diverticula or colon which contains them. An operation to correct a fistula between the sigmoid and bladder is often very difficult, and should not be attempted in the presence of an acute infection.

3. "Obstruction."—This may be acute or chronic. When acute it is usually due to involvement of the small intestine by adhesion, producing kinking or strangulation by bands. It may result from edema and infection in the acute diverticulitis. Chronic obstruction is due to hyperplasia, and the clinical mimicry of carcinoma is almost complete. In twenty-five such cases (Lynch) in which stenosis of the bowel had occurred, in at least twelve the diagnosis of carcinoma was made either before or at operation. Moynihan has repeatedly called attention to the great liability to confusion between the two conditions. Very advanced age, comparatively recent constipation, cachexia and the presence of blood in the stools, all favor the diagnosis of carcinoma; while long standing constipation, the absence of blood in the stools, together with any evi-

dence of pus, would suggest peridiverticulitis (Lynch). Peridiverticulitis and cancer may co-exist, as was demonstrated in 31 per cent of Mayo's cases.

4. "Carcinoma developing on a diverticulum."—The carcinoma has such definite relationship to the diverticulitis as to make it reasonable to assume that infection and irritation by hardened fecal masses in diverticula were the cause of chronic irritation and precancerous change. Griffin found in Mayo's cases that for every sigmoid resected for diverticulitis, 7 had been resected for carcinoma. Their statistics show that in 300 resections for carcinoma, 180 were for sigmoid growths.

**Diagnosis.**—The principal conditions that may mislead us are as follows—

1. Sigmoiditis.
2. Hypertrophic tuberculosis.
3. Syphilis.
4. Pelvic inflammation.
5. Actinomycosis of sigmoid.
6. Left sided appendicitis.
7. Carcinoma.

I wish to mention a few differential points in regard to carcinoma.

1. Tendency to obesity and good general development in diverticulitis.

2. Repeated attacks of pain, and tenderness in left lower iliac region.

3. History of tumor, which disappeared in a short time.

4. Absence of microscopic blood in stools after repeated observation.

5. Presence of vesico-colic fistula.

6. X-ray demonstration of diverticula.

7. In carcinoma pain and tenderness are late and often a tumor is noted for some time before the pain occurs.

Diverticula may exist a life time and never produce symptoms, but do cause symptoms more often than we have been accustomed to believe. A history of a long standing inflammatory trouble in the left iliac region should be suggestive. The sigmoidoscope and cystoscope should be employed. X-ray examination may not help us, as the diverticula may be filled with fecal matter or the apertures closed by the inflammation present, so that the barium solution cannot enter, thus giving a negative plate.

**Treatment.**—As stated above, diverticula **per se** do not call for any treatment, except to try to prevent the secondary pathological changes. These changes often call for immediate and extensive surgery, and we should not condemn anyone to a cancerous death without at least thinking of peridiverticulitis, and doing all in our power to clarify the condition.

## DISCUSSION.

DR. J. W. BRANDAU, Clarksville: It might be of interest to report very briefly a case of this kind which I assisted Dr. Ross in operating on a few months ago. The patient was a little girl, five years of age, who was suddenly taken with pain in the abdomen, and a diagnosis of acute appendicitis was made. She was brought to the hospital, her abdomen was opened, and the appendix was found normal. Upon further search we found the omentum adherent to something. This was gently broken loose and a clot of blood was found adherent to the diverticulum. The diverticulum was about an inch and a half long and as large as an ordinary lead pencil, with two perforations, one near the point of attachment, and one near the apex. This diverticulum was dealt with the same as we would deal with an appendix by making a purse string suture and removing it after ligating, and inserting a few Lembert stitches. The patient made a good recovery.

# TREATMENT OF NEURALGIA OF THE FIFTH NERVE BY INJECTION OF THE GASSERIAN GANGLION.*

By Duncan Eve, Jr., M. D. Nashville,

This is a subject that has interested me for a number of years, and as early as 1907, while visting Dr. Murphy's Clinic in Chicago, I called on Dr. Hugh Patrick and had the pleasure of seeing him inject a number of these cases by the deep extra-cranial injection of alcohol into the superior and inferior maxillary nerve trunks near the foramina of exit from the skull.

After returning I adopted the above method for treating these cases and up to January 1921 have had 37 cases in all.. The results have been only fair. Most of the patients, even after what you might call a good injection, still complained of some slight shooting or darting pains. Ten of the cases had good results, but have returned in from five to eight months for another injection. Seven were complete failures.

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*Read at Annual Meeting of Tennessee State Medical Association at Nashville, April, 1921.

Dr. H. H. Martin, of Savannah, Ga., was passing through our city last January, and at the request of Dr. Hilliard Wood, went to St. Thomas and injected the Gasserian ganglion in a typical case of neuralgia of the fifth nerve. The results in this case were so wonderful that it convinced me that it was the proper treatment for such cases. The operation has been taken up by many men in France, England, Germany and America.

The injection of the ganglion is through the foramen ovale, which can be accomplished by one who will give sufficient time to experiments on the cadaver. In regard to the danger, Martin states that he has never known the injections, if properly performed, to do any serious harm. The only serious consequence, in his experience, is a keratitis, which occurs in thirty per cent of his cases. Martin and others state that the keratitis rarely involves the deeper layers of the cornea, and in most cases recovers in due time, without injury to the eye.

**Technic of the Operation**—It requires a general anesthetic. The needle is 10 cm. long, graduated up to 8 cm. The needle should be introduced on the cheek about 3 or 4 cm. back of the angle of the mouth. The needle is pushed backward, upward and slightly inward, passing into the spheno-maxillary fossa between the ramus of the lower jaw and the alveolar process of the upper jaw, closely grazing the latter. Viewed directly from in front, the projected line of the needle should pass through the center of the zygoma. Therefore, you can draw two lines on the face from the point at which the needle is introduced near the angle of the mouth; one of these extends in the direction of the pupil, and the other to the center of the zygoma. These lines represent the two planes in which the needle must be directed. Notice the depth to which the needle has penetrated, and if this should be 6 cm. the point is in the neighborhood of the foramen. If, on the other hand, it should be less than 6 cm., the point is above the foramen, and if more than 6 cm., the point is below the foramen. If the needle strikes the base of the skull too far back, there is danger of injuring the eustachian tube or the internal carotid artery. This is avoided by keeping the outer end of the needle depressed far enough so that the projected line of the needle, viewed from the side, passes anteriorly to the middle point of the zygoma.

Gentle manipulation will place the point in the foramen. It can be recognized by the sense of touch, if sufficient practice has been had on the cadaver. When one finds the needle in the foramen, it is advanced until the 8 cm. mark is almost reached and at this stage one will feel a certain fibrous resistance which indicates that the dura has been reached. The stylet is now withdrawn and cerebrospinal fluid should be well up through the needle. The needle should be slightly withdrawn, or until the cerebrospinal fluid stops flowing. Now inject 1 cc of 2 per cent novocaine. This is for the purpose of temporary anesthesia in the area supplied by the fifth nerve so the patient will not have the burning pain caused by the action of the alcohol after coming out from the anesthetic. With a syringe of 2 cc of 95 per cent of alcohol, half is injected and the other half being slowly injected throughout the ganglion as the needle is withdrawn about 1 cm. Apply a dressing to the eye upon the affected side. Martin uses a large plaster of vaseline directly over the eye.

The immediate results of the injection are anesthesia of the entire area supplied by the fifth nerve.

As to the ultmate results, Martin claims that anesthesia will persist for a variable time and in variable degree, and an analgesia which in the greater majority of cases will be permanent. Harris, of London, states the cure of neuralgia is, however, certain and likely to be permanent, though his first case of injection of the ganglion dates back only four years.

### Report of Five Cases.

**Case 1.**—Mrs. M. F., aged 43, was referred by Dr. Chas. Dake, of Hot Springs, Ark. Complained of paroxysm of pain on right side of face when touched, or by even the thought of being touched. This condition was first noticed in April, 1913, when it was of a very mild character, but since which time had rapidly grown more severe. Numerous dentists and doctors had been consulted, but with no permanent relief. Several teeth had been pulled and a superficial injection with alcohol of the maxillary nerve had been done, which gave only temporary relief. On January 31, 1921, the injection of the ganglion was done under ether anesthesia without difficulty. The relief was instantaneous and complete. No complications ensued, and the patient was able to leave the hospital on the seventh day.

**Case 2.**—Mr. W. G. J., aged 68, referred by Dr. Ramer, of Springfield, Tenn. Patient stated that for twenty-five years he had suffered with paroxysms of pain on right side of face and upper lip. These would be started by touching the face or any jarring of the body, and were described by the patient as shooting pains. Patient had all teeth, with the exception of three, removed many years ago in attempting to relieve the pain. During past six years has been relieved somewhat by repeated injections with alcohol. On February 3, 1921, the Gasserian ganglion was injected under ether anesthesia without difficulty. The relief from pain was complete, but unfortunately this patient developed a corneal ulcer. Also he developed a paralysis of the right vocal cord and the abducens nerve. Since the operation he has been under the care of Dr. Robt. Sullivan, and was in the city April 10, 1921. At this time the corneal ulcer is nearly well, and the paralysis of the right vocal cord is now only partial, and he is feeling much better. The paralysis of the sixth nerve is still present. The relief from the pain is absolute.

**Case No. 3.**—Mrs. L. C., age 59. For fourteen years patient had suffered periodic spasms of pain on right side of face. Any jarring or thought of having face touched would cause a paroxysm of intensely severe pain. All of her teeth had been removed several years before in an attempt to relieve the condition. She stated she had consulted fourteen doctors and dentists, but had been relieved only temporarily.

On February 4, this year, under ether anesthesia, an attempt was made to inject the ganglion, but without success in finding the foramen ovale; however 1 cc of alcohol was injected at the site, or at the depth of six and one half cm. During the operation, a large hematoma was produced, but disappeared within a few days with pressure. To our surprise the pain disappeared. We attribute the result to the action of the alcohol upon the nerve trunks, which had just emerged from the ganglion. The patient has not used morphine since the operation, which is very gratifying to the members of her family.

**Case 4.**—Mr. L. C., aged 57. For eight years the patient had suffered with pain on right side of face. It was impossible for anyone to touch his face without causing severe pain, which lasted for several minutes. The pain extended from temporal region to lower lip, and including the eyeball; thus all three branches were involved. Numerous injections of the individual nerve trunks gave temporary relief. The injection was attempted under ether anesthesia on February 5, 1921, but I was unsuccessful in my effort to introduce the needle into the foramen ovale. Consequently, no relief of symptoms was obtained.

With the insistence of the patient that another attempt be made, the Gasserian ganglion was injected within three minutes under gas anesthesia on February 12, 1921. There was immediate relief from pain with no complications.

**Case No. 5.**—Mrs. L. C., aged 45, referred by Dr. S. R. Teachout. For past six years patient had suffered with intermittent pain on right side of face, along the ramus, or at a slightly higher level, but never in the temporal region. In attempting to relieve the pain, patient had all the upper and lower molars on the right side pulled, but without success. The pain was described as "sharp" and "knife-like," being very severe at times. The attacks gradually grew more severe. the right Gasserian ganglion was injected on February 28, 1921, under general anesthesia. The relief from pain was complete and without complications.

## DISCUSSION.

DR. A. W. HARRIS, Nashville: I congratulate Dr. Eve on his paper and the report of his cases. He did not mention the question of diagnosis in these cases, and this operative procedure, which is considered to be attended with great danger in many ways, is only applicable in the cases of major neuralgia. There is no difficulty in differentiating between the major neuralgias and the minor neuralgias. Every procedure that has been instituted for the relief of this condition of the major type has more or less failed to relieve the condition, except the one he proposes, and the removal of the Gasserian ganglion. Minor operative procedures, local injections, and trunk injections are applicable in the minor neuralgia cases and are very successful. I have only seen a few of the ganglion injections, and in none of them have the consequences been very grave. There have been no fatalities in those I have seen operated on, with the exception that in one case there was a paralysis of other cranial nerves. I have seen Dr. Wilfred Harris and Purvis Stewart do the operation; I have not seen Dr. Eve do any of these operations. A very marked hematoma may form in some of these cases, which is quite a frightful looking affair, but it has cleared up in the course of a few days.

In a recent article by Dr. Harvey Cushing, he absolutely condemns this method, saying that it is fraught with too much danger to be generally advocated. He does not mention, however, any case he has seen that has terminated fatally, and he mentions five or six complications that might follow. In view of the difficulties of removal of the Gasserian ganglion, though Dr. Cushing reports some three hundred and twenty odd cases with only two fatalities, and in spite of his adverse report, I think this procedure is worthy of serious consideration, and I would not hesitate to advocate it in the cases of major neuralgias after the other minor procedures have been tried, particularly if there is any question as to the differentiation between minor and major neuralgias.

There is one plea that one should make in handling these cases. Every case we see is already somewhat mutilated and handicapped by having the teeth removed. That is an unnecessary procedure. You can relieve some cases of minor neuralgia by the removal of the teeth. In cases of major neuralgia it increases the number of attacks, and we do strongly condemn this practice and advocate ganglion injection, but only in the hands of men who have, as the doctor suggested, experimented to a great extent on the cadaver.

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DR. EUGENE J. JOHNSON, Memphis: I have enjoyed Dr. Eve's paper very much indeel. It is a subject I am intensely interested in, because I have had the experience of having handled some of these cases by surgical means. Notwithstanding the modern technic which Dr. Eve has worked out so nicely along with others, I believe that in every case it would be well to try first alcohol injections, using the technic described by Dr. Eve. This is particularly true in the minor cases of neuralgia.

I have seen a number of cases of trifacial neuralgia that have had repeated injections of alcohol to the degree of affording temporary relief. In every one of them, after the first injection of alcohol, the history was about this: They would have relief anywhere from a few months to several years, then the pain would return, and they would come for a second injection. The period of relief became gradually less and less, so that these patients would return for the second, third and fourth and fifth injections without getting any relief at all. Then these patients became desperate and wanted relief by operative measures if they could get it. Operative procedure, so far as my experience goes, is the only method for relieving them up to the present time.

Speaking purely in defense of the surgical side of this question, and the temporary relief obtained by these patients from alcohol injections, if I may be permitted, I will say that I think I can claim priority for having done this work fifteen years ago. The method at that time was to divide posterior roots, and by a process of divulsion, twisting the entire ganglion out. The operation was rather a hazardous procedure, and the mortality was high.

In studying the anatomical points I conceived the idea that the neuralgia was in the second and third divisions in the case I had. By pulling the ophthalmic division into the cavernous sinus, losing the patient from hemorrhage would be less likely to occur, then I caught that portion of the ganglion containing the second and third divisions in the accessory nerve, liberating it from the ganglion, that is the root of the third division: I hooked up the third division and stretched it as much as I could, then hooked up the second division and stretched that. I made a split at one point, rolled it back, and exposed definitely the ganglion. Instead of dividing the posterior root, of late the ophthalmic division is left entirely alone. I figure that if I need that portion of the ganglion I might do the operation of going into the posterior root, removing that portion of the ganglion with the second and third divisions. That is what I did, and had no trouble in handling the case in that way. The patient made an uneventful recovery. He had any number of alcohol injections, and went along for twelve years and then died of pneumonia without having had a recurrence of his neuralgia.

I have had altogether 41 cases that I have operated by this method, with only one fatality. The patient whom I lost was a feeble, worn out, starved to death woman, seventy-five years of age. She lived two weeks after the operation, and died as a result, I think, of starvation. When she tried to eat she could not masticate her food because it was painful for her to do it, and her starvation was brought about in that way.

I do not wish to place myself on record as advocating in every case of trifacial neuralgia a surgical procedure. I believe we should try alcohol injections first in these cases, and we can certainly relieve some of them temporarily, and perhaps permanently. After having tried alcohol injections and the pain returns, I think we are justified in going ahead with surgical measures, because the mortality is low, and these patients after operations are, as a rule, the most grateful patients in the world. I do not know of any class of patients who are greater sufferers than those who have trifacial neuralgia. Some of them have it to the degree of trying to commit suicide. Every case I have had received repeated injections of alcohol, with beneficial effects temporarily, varying from a few months to several years.

DR. DUNCAN EVE, JR., (closing): The advantage of alcohol injections into the Gasserian ganglion proper for tri-facial neuralgia is very remarkable. For the last few months I have been using this method, and all authors and literature claim that the relief is permanent when a proper injection is made.

## ULCER OF THE STOMACH AND DUODENUM.*

By William D. Haggard, M. D., F. A. C. S.,
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Gastric ulcer appears to occur in that type of stomach which empties slowly, holds its secretion longer, and is less motile than normal—the hypotonic stomach. Duodenal ulcer is more apt to be associated with an irritable, rapidly emptying or hypertonic stomach. Stasis of blood near the lesser curvature, the favorite ulcer site, is predisposed to by parallel arterioles supplied by arterial majors at both ends according to the study of the blood supply in injected specimens by Reeves. He also showed that thrombosis was invited in the duodenum by a triangular blood supply in its first two inches. The acid gastric juice is ever ready to corrode and destroy any devitalized tissue that it has access to, even in its own mucosa.

The stomach which is naturally hypotonic, allowing the gastric juice and food to remain therein for relatively long periods of time, is the type of stomach which is prone to suffer when the active causes of ulcer come into play. In cases of duodenal ulcer the converse is true, the reasons being that the duodenum receives more quickly and in larger amounts the acid juice and the more or less undigested particles of food.

The actual causes of ulceration have been attributed to many factors. First of importance is infection, and this in the great majority of cases is focal. The chief foci are the appendix, the tonsils, the antra and accessory sinuses, and the teeth. Pyorrhea alveolaris is thought to be a very common cause. From the work done by Rosenow, certain bacteria have been found to have a selective action on the stomach. He injected intravenously bacteria cultured from pus at the root of a tooth and repeatedly caused gastric ulcer in animals. Moynihan believes that the infected appendix is the most frequent clinical cause. The swallowing of chemical irritants, thrombosis of the vessels in the stomach wall, and lastly, mechanical irritants such as the habitual ingestion of large particles of food poorly masticated, will produce an ulcer. This will partially explain why three times as many men are affected as women. The majority of gastric ulcers are in the pyloric end of the stomach which is the grinding end. C. H. Mayo believes "that peptic ulcer is developed by a combination of local chemical effects, possibly causing prolonged vessel spasm or claudification, a counterpart of Raynaud's disease or scleroderma, or by direct interference with the circulation through infarction emboli of bacteria, chemically and mechanically active in the tissues, and thereby lowering the local resistance to the action of digestive fluids."

About seventy per cent of peptic ulcers are in the duodenum, and all but a very few of these are located in the first part of the duodenum, the second portion being rarely affected, and the third portion never affected. About thirty per cent are to be found in the stomach, and they are usually single, but rarely they are multiple. The pyloric antrum is the most common site, the lesser curvature and posterior wall next, the anterior wall and greater curvature being less frequently involved.

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*Read at Annual Meeting of Tennessee State Medical Association at Nashville, April, 1921.

McCarty has said that ulcer of the stomach can be divided into two great groups: the simple or non-malignant ulcers, and the malignant or carcinomatous ulcers. Ulcer may involve one or all the coats of the stomach wall. It is usually less than two cm. in diameter unless malignant. When viewed from the mucous surface it has the appearance of a crater and the base is usually necrotic. The edge of the ulcer and the base are the points where malignant changes occur. It has been definitely shown that a patient with a gastric ulcer is harboring a potential cancer of the stomach. Roughly speaking, McCarty states that an ulcer over two cm. in diameter is carcinomatous. Malignant changes are microscopical changes at the beginning, and they may take place in even the smallest ulcer. It is not always possible for a surgeon to determine the innocence of a gastric ulcer, at operation. It is difficult for a pathologist to make a frozen section and say accurately that the specimen is not malignant. Moynihan asserts that in "ten per cent of the cases of gastric ulcer, to all appearances simple in character, a microscopic examination of the specimen removed by operation reveals the early stage of carcinoma." To realize this is the one important point in the pathology of a gastric ulcer, and since this is true, it is utterly hopeless for the roentgenologist to positively distinguish between ulcer and a gastric cancer. It has been shown that the relationship betwen ulcer and cancer of the stomach is very close, and the great majority of evidence is in favor of the fact that cancer of the stomach is preceded by ulcer. Ulcer of the duodenum practically never becomes malignant. The pyloric ring makes an abrupt dividing line. This is undoubtedly due to the change to a highly concentrated alkaline medium. Cancer appears practically always on mucous surfaces whose secretions are normally acid or that become so pathologically.

The symptoms of gastric ulcer are fairly characteristic of the lesion. The cardinal points in the history are the relationship of pain to the taking of food, its control by food, alkalies or by vomiting or lavage.

Pain begins two to four hours after meals and commonly lasts until the next meal is taken. This "food-ease" is very characteristic and continues until the stomach is partially or almost entirely empty. It is the emptiness of the stomach allowing acid-corrosion that produces the pain. The earlier the pain, say in one half to two hours, the more likely is the ulcer to be in the stomach. When in the duodenum the pain does not begin usually until two, three or four hours after food. Sometimes it is delayed so long that the patient denies having pain after eating, but upon questioning states that it is before meals, one-half to one hour and relieved by food. It is then called a "hunger-pain." When the stomach is empty after mid-night it is very significant if the patient is awakened with pain at two or three o'clock. He commonly puts a cracker or glass of water by the bedside to take for relief of this pain. In gastric ulcer Moynihan says that "the constancy of the sequence—food, comfort, pain; food, comfort, pain, is the most important of all the clinical matters concerned with the diagnosis."

The chronicity and recurrence of the symptoms in "spells" and the periods of relief for weeks or months are characteristic. The pain often comes in attacks lasting from one to several weeks, and these spells are strikingly prone to occur in the spring and fall, perhaps due to the incidence of the minor respiratory infections. The patient is quite free from symptoms between these periods of exacerbation and believes that he is well. When he does have a return of symptoms he confidently goes back to the management that seemed efficacious before. This alternation is kept up until some complication arises that necessitates operation or that may prove fatal, i. e., perforation, with acute peritonitis or chronic peritonitis with adhesions or abscess; severe hemorrhage, obstruction at the pylorus, and if gastric, malignant degeneration of the ulcer.

Vomiting is not a conspicuous symptom in ulcer of the stomach unless there is interference with the emptying of the stomach from the scar of an old ulcer in its effort at cicitrization. Vomiting of blood when present is of considerable importance as an aid to diagnosis. Hemorrhage occurs, however, in only 22 to 30 per cent of the cases. Black, tarry stools follow bleeding from the stomach, and sometimes occult blood, if found in the stool, denotes ulcer, if meat and other causes for blood can be eliminated.

Hyperacidity is practically always associated with peptic ulcer as well as hypersecretion. Hyperacidity is said by Eusterman to be present in 60 per cent of gastric ulcers and 65 per cent of duodenal ulcers. If more than 200 cc of secretion is recovered from the test meal it is indicative of ulcer, especially so if there is an absence of food remnants. Where obstruction exists, the test meal will show particles of food which have remained in the stomach some hours or even days. The absence of hyperacidity, especially in elderly patients, points rather to cancer than to ulcer. Normal or subnormal hydrochloric acid is estimated to occur in from fifteen to twenty per cent of the cases. Butyric acid and the Oppler-Boas bacillus are indications of obstruction with fermentation of retained food.

Physical examination may reveal a tender point theoretically to the left of the median line in gastric ulcer and to the right in duodenal ulcer. Rigidity of the rectus muscle is indicative of chronic perforation; the presence of an epigrastic mass may be either the result of inflammation or malignant change. In cases of ulcer the epigastrium is sensitive to pressure as a rule. Peristalsis when visible points to obstruction at the pylorus. The splashing of fluid in a full stomach when stenosed at the outlet may be elicited in some cases. The outline of the stomach can be very readily determined and mapped out by inflation with air.

The duodenal ulcer presents on abdominal section a very characteristic appearance. It is hard, indurated, whitish and covered over by a thin, adventitious tissue or membrane containing a good many blood vessels, which, when one rubs it with gauze, presents a reddish appearance that is like the stippling of paint, and therefore called the "stipple sign." There is not much difficulty about diagnosing a duodenal ulcer. Occasionally, if one puts the duodenum on the stretch it will create a whitish looking anemic spot that may deceive the unitiated. but that is about the only opportunity for mistake.

A duodenal ulcer is often as large as a five-cent piece and occasionally larger than a quarter. The gastric ulcer (Fig. 1), if situated on the lesser curvature, is very easy to identify but the whole stomach must be thoroughly palpated and examined. The induration is very characteristic.

The x-ray findings in duodenal ulcer are extremely accurate, and will corroborate the diagnosis in 95 per cent of the cases according to Carman. It is usually a deformity of the smooth, round, well-filled duodenal cap that is marked by an irregularity or filling defect, often star-shaped and as a rule constant, (Figure 2, Duodenal Ulcer).

The gastric ulcer is characterized by a deep incisura opposite the ulcer (Figure 3), the incisura being on the posterior wall or on the greater curvature and the ulcer is on the lesser curvature. If the ulcer is a perforating one, the bismuth will fill out the bow-window (Fig. 4) on the lesser curvature, which is as a rule very definite.

The results following surgical treatment of a peptic ulcer are noteworthy. Large numbers have very recently been compiled. Paterson reviewed over 450 cases done over seven years ago. He finds that 80 per cent can be considered as cured. In 9 per cent the results are fairly good, that is, they have some indigestion at times and have to be careful of their diet. In seven per cent the results were unsatisfactory.

Dr. C. H. Mayo reports that there were 647 operations performed in the Mayo Clinic on 638 patients with callonsed ulcer of the stomach from July 1, 1914 to July 1, 1919. In these cases the primary mortality was 3.2 per cent, more than double the average mortality in 2,734 operations performed in the same period on 2,720 patients with duodenal ulcer. Dr. Hunter, actuary of the New York Life Insurance Company, in an investigation at the Clinic of the outcome of operations on the stomach and duodenum for ulcer, found that

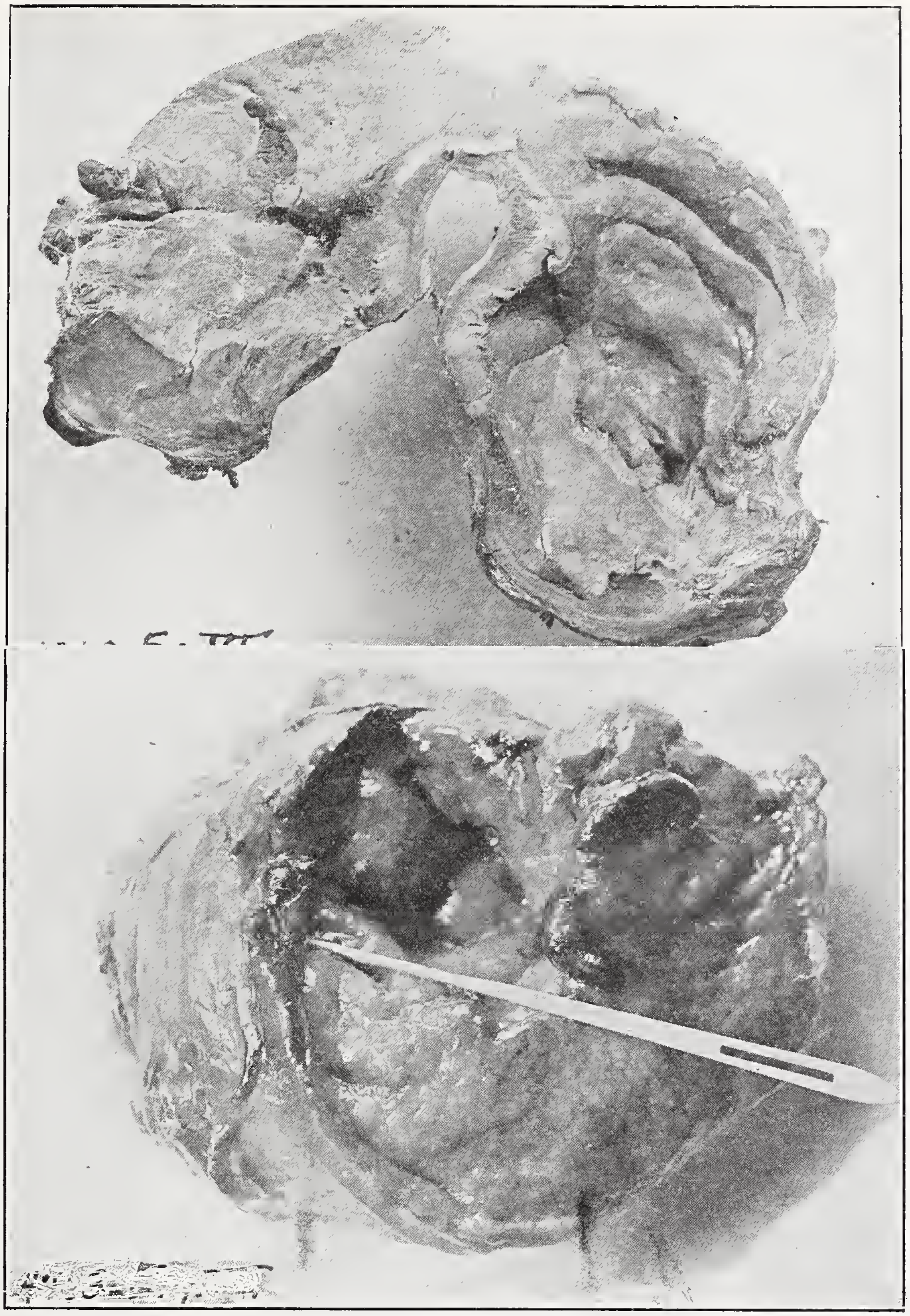

Fig. 1. Photograph of large ulcer, the size of a dollar, involving the pyloric end of the stomach, upon which pylorectomy was done successfully.

the average death rate during a four-year period following the operation in patients with gastric ulcer was slightly more than three times the normal, while in patients with duodenal ulcer it was, if anything, slightly less than normal. This means that a considerable number of ulcers of the stomach are really beginning cancer, and should be treated as such.

W. J. Mayo, in a comprehensive analysis of their cases, referred very interestingly to 85 cases of ulcer on the posterior wall of the stomach. All were of the chronic perforating variety, and the crater of the ulcers varied from 2 cm. to 11 cm. in diameter. All the coats of the stomch were perforated in 53 cases, 57 were males and 28 were females, the average age was 43.9 years, the youngest being 18 and the oldest 69. The duration of symptoms average six and one half years, with an average weight loss of 17.8 pounds, and 20 per cent had gross hemorrhage.

The main facts about ulcer of the posterior wall of the stomach are: first, chronicity; second, the lesion is usually larger; third, there is more or less continuous distress,; and fourth, occasional exacerbation from localized peritonitis. Anemia, often with marked cachexia, is also characteristic of these ulcers.

Balfour found in cases of ulcers of the duodenum in which nothing but gastro-enterostomy was done and in which there had been hemorrhage before operation that one in every eight bled after the operation, although all signs and symptoms of the ulcer had disappeared. In gastric ulcer it occurred only in one case out of twelve following operation, but this was because the gastric ulcers were destroyed by excision or by a fine cautery tip at the time of operation. It was also found that the bleeding ceased and that the mortality was not increased thereby.

The Balfour method of actually destroying the ulcer of the stomach on the lesser curvature or anterior wall by slowly cooking it with a Paquelin cautery is very thorough. The aperture thus made can be closed with interrupted sutures of catgut and a portion of the lesser omentum drawn over it with silk. The procedure is then supplemented by an independent no-loop gastroenterostomy which should not be omitted.

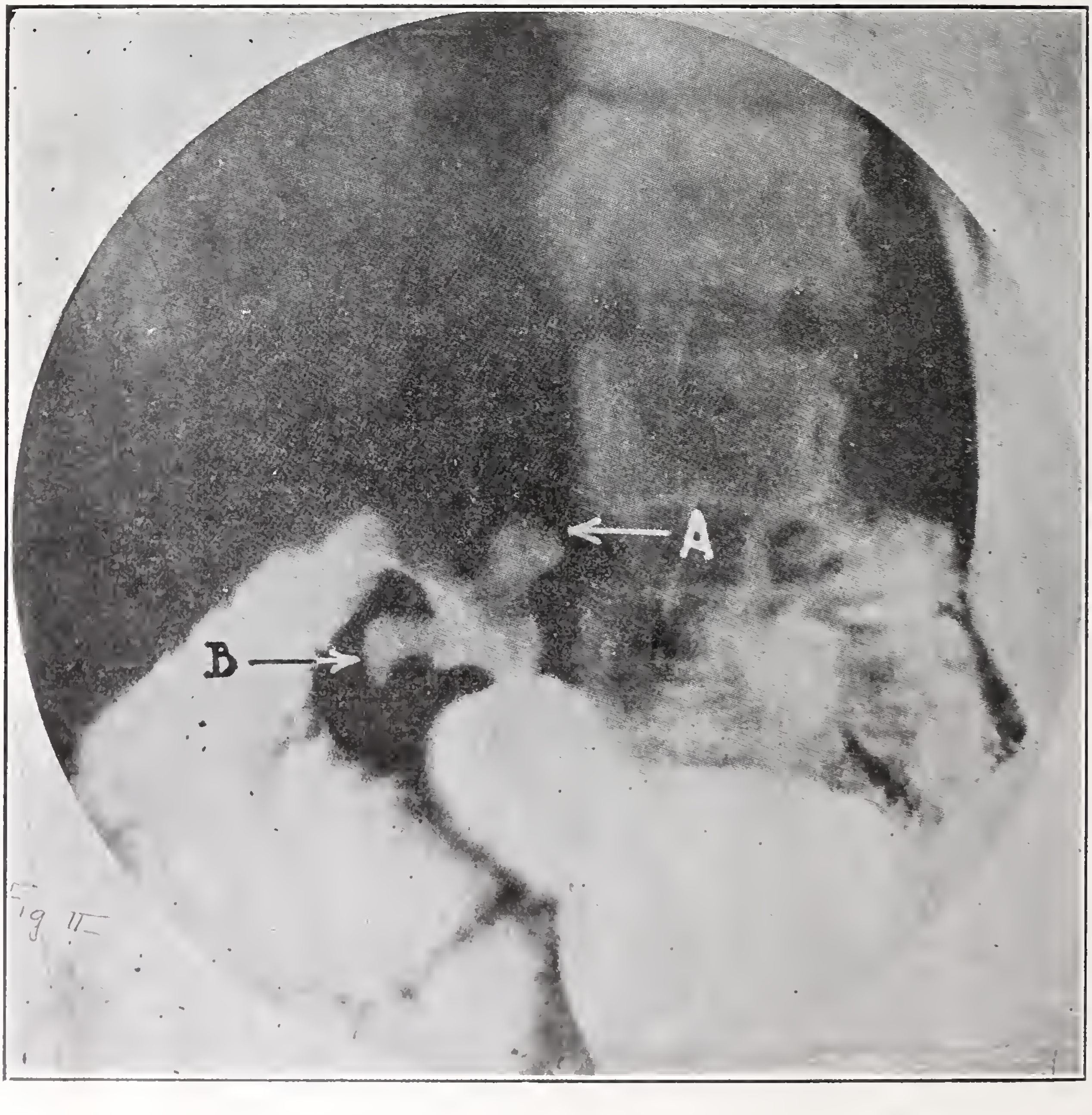

Fig. 2. Star shaped irregular feeling defect (A and B) of Duodenal Ulcer.

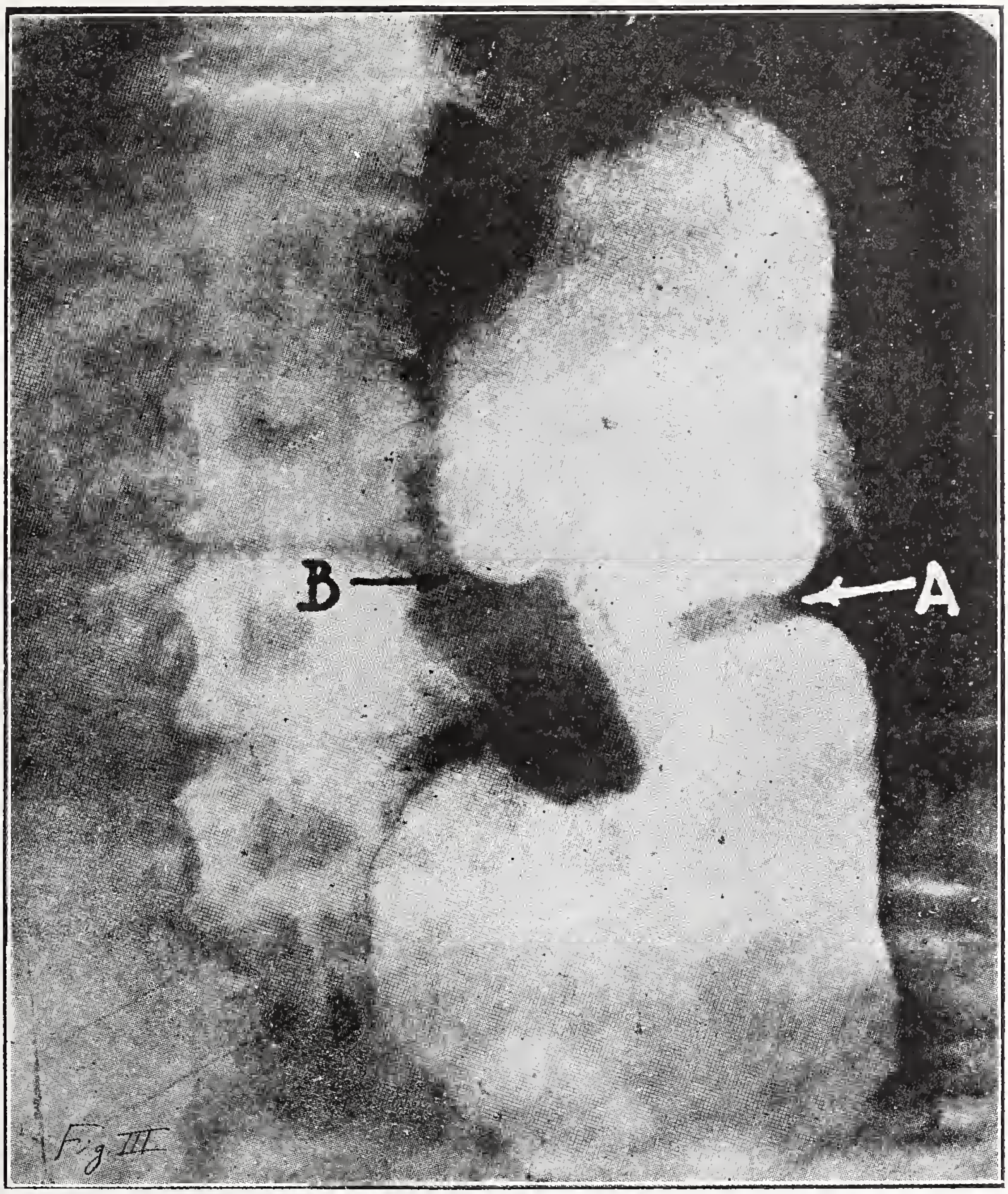

Fig. 3. Incisura (A) opposite large gastric ulcer.

Excluding jejunal ulcers, there were 905 gastric and duodenal ulcers operated on by Moynihan, with twelve deaths, or a primary mortality of 1.32 per cent.

Gastroenterostomy has been in the past and still is the operation of choice in the hands of the majority of surgeons for duodenal ulcer. Excision of the gastric ulcer or its destruction by the cautery, on account of its liability to cancer change, followed by gastroenterostomy is indicated. W. J. Mayo advocated sleeve resection with or without a gastroenterostomy as the best method for dealing with any bad extensive ulcer of the body of the stomach. The principle upon which gastroenterostomy accomplishes the cure of gastric and duodenal ulcer is the same principle employed by internists in the medical treatment of this disease, namely, the lowering of the free hydrochloric acid in the gastric contents together with the relief of pyloric spasm. An operation is unquestionably the best procedure when once the diagnosis has been definitely made. A satisfactory x-ray is invaluable. Some of the failures to cure in cases where gastroenterostomy has been done are cases in

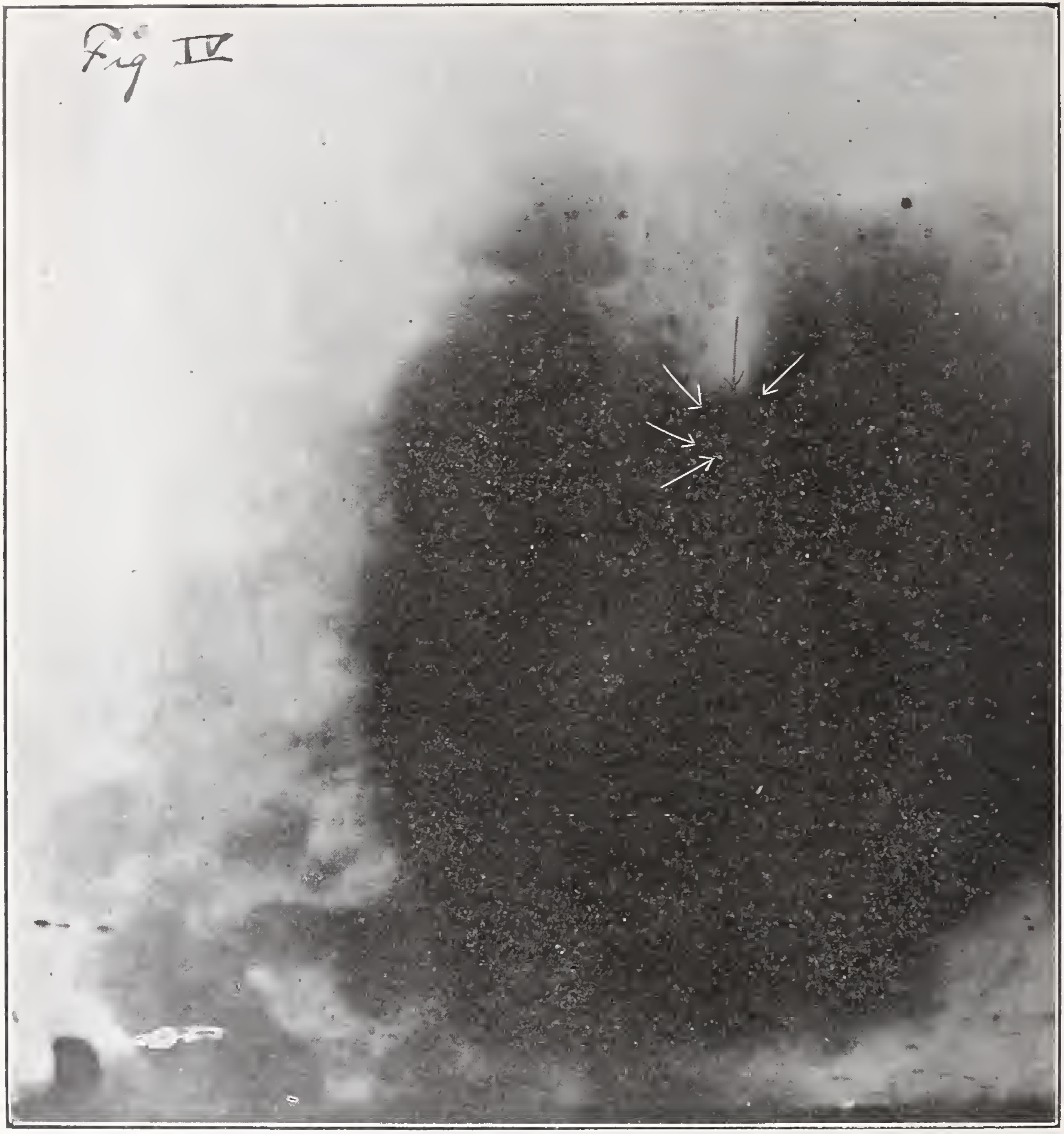

Fig. IV. Ulcer on lesser curvature of stomach. Arrows indicate pouching or significant "bow window" effect produced.

which there was never an ulcer. An operation "for the diagnosis of ulcer where no ulcer exists" obviously will not cure. The operation is a distinct harm on a functional trouble or gastric neurosis. What a woeful failure it will be if performed upon a neurasthenic! In the presence of ulcer, however, the results both immediate and remote are extremely satisfactory and as a rule complete and permanent.

Sixteen cases operated upon by Paterson for gastric and duodenal ulcer were later observed by him at autopsy. He found that in every instance the ulcer had healed. He further found that the stoma of the gastroenterostomy which had first been made 2 1-4 by 2 1-2 inches in length had contracted down to 1 3-4 to 2 inches.

Following an operation for ulcer there is a decrease in the total acidity of about fifty per cent and an increase in the mineral chlorides. The decrease of the total acidity is due to a decrease in the total chlorides secreted by the stomach and to neutralization of the acid by back-flow of bile and pancreatic juice through the new opening. The increase in the mineral chlorides depends on the amount of back-flow of the intestinal juices into the stomach.

Lemon at the Mayo Clinic worked out 200 cases of chronic peptic ulcer as regards the acidity before and after operation. He found that there was a reduction in the general acids of 39 per cent, and in the free hydrocloric acid of 46 per cent.

Based on these determinations a gastroenterostomy is not merely a mechanical procedure. It is a physiological operation to enable nature to diminish the acidity, relieve pylorospasm and obtain prompt emptying of the stomach.

As C. H. Mayo so tersely says, "In the surgical treatment of ulcer we have applied a well-known principle of agriculture; an acid and continuously wet soil is tile drained, and its surface limed."

The post-operative management of operations for peptic ulcer is most important, and the practitioner should give it his best endeavors and unremitting patience and attention to detail. A carefully selected dietary consisting mostly of milk products and eggs with soft foods is to be employed at first. The eggs should be taken between meals also and the dietetic regimen should be assiduously supervised for a number of months. Alkalis are advantageously kept up for some weeks until the stomach has established its own acid-reduction plant by supplying its own alkalis through the new stoma, thus obtaining and maintaining the permanent cure of the ulcer.

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# DIAGNOSIS OF ACUTE ABDOMINAL CRISES.

By H. H. Shoulders, M. D., Nashville.

Some time ago a friend of mine handed me with strong recommendation, a pamphlet containing a series of lectures on the above topic by Mr. Arthur H. Burgess, F. R. C. S. The order in which the subject was arranged appealed to me very strongly and has been of practical help at the bedside. The groupings as they appear in this paper are from this source entirely. The illustration showing hyperalgesia areas is reproduced from a Hunterial lecture delivered before the Royal College of Surgeons by Mr. David Ligat, F. R. C. S. The interpretations of this sign ar ealso from this source. These articles were the inspiration for a review of the literature on the subject and the preparation of this paper.

The conditions which give rise to acute abdominal crises are serious in their nature. The issues of life and death are often involved An early diagnosis is of the utmost importance and unfortunately in most cases we must rely upon purely clinical evidence (history and physical signs) for a diagnosis. These conditions warrant us in frequently reviewing the literature on the subject and make it necessary to call into play every clinical procedure of proven value.

The symptoms of abdominal crises are divided into two groups:

(1) General. (2) Local.

The general symptoms are:

(a) Various degrees of shock.

(b) Alteration in frequency of pulse.

(c) Change in temperature.

(d) Alteration in type of respiration.

(e) Other symptoms such as dry, furred tongue, hiccough, stranguy, tenesmus, etc.

All these are symptoms which indicate that a patient is ill, and in themselves have little to do in determining the location and character of the ailment.

Local symptoms and signs are to be relied upon in most cases in determining the site and character of the lesion.

The local symptoms are:

(a) Pain.

(b) Cutaneous hyperalgesia.

(c) Tenderness, local and general.

(d) Nausea and vomiting.

(e) Muscular rigidity.

(f) Abdominal distension.

(g) The presence of free gas in the peritoneal cavity.

(h) The presence of free fluid in the peritoneal cavity.

(i) Local abdominal or pelvic swelling.

(j) Certain changes ascertained upon rectal examinations.

## Pain.

It is well recognized that the viscera are themselves insensitive to touch and pain, and that pain resulting from a lesion in a viscus is felt, not in that viscus, but is referred to the peripheral distribution of the spinal nerves arising from those segments of the spinal cord with which that viscus is connected through its sympathetic nerve supply.

The abdominal wall is supplied by the lower six dorsal nerves. The abdominal viscera are connected via the sympathetic system with these same nerves. It follows therefore that pain arising from the morbid state of an abdominal viscus is referred to the peripheral distribution of these six lower dorsal nerves.

Another anatomic fact having intimate bearing on the question of abdominal diagnosis is that there is in a connective tissue layer of the parietal peritoneum a rich nerve plexus—supplied from the cerebro-spinal system. The parietal peritoneum is therefore very sensitive, whereas visceral peritoneum, as before stated, is insensitive.

The symptom "abdominal pain" is most elusive. To correctly interpret it requires a most careful analysis. It should be studied from three viewpoints. (1) The pain complained of by the patient (subjective). (2) The pain produced by pinching the skin and subcutaneous tissues over the abdomen (the viscero sensory reflex). (3) Pain produced by deep pressure (pressure pain).

**Subjective pain** may originate in two ways—first, from the viscus affected producing a referred or reflex pain in the region whose nerve supply comes from the irritated spinal cord segment. Second, from inflammation of the parietal peritoneum, which pain is not reflex any more than the pain in irritated skin is reflex.

The pain from the various organs is distributed as follows: From the stomach to the peripheral distribution of the fifth to the eighth dorsal nerves—that is between the xyphoid cartilage and the umbilicus; from the duodenum to the area just above the umbilicus; from the small intestine and appendix to the umbilical area over the area supplied by the eighth to the eleventh dorsal nerves—(the umbilicus being in the tenth). From the liver and gall bladder to the lower part of the epigastrium—the area supplied by the seventh to ninth dorsal nerves. The eighth dorsal nerves may carry pain sensation to the region of the scapula and irritation of the diaphragm will, through the phrenic nerve, irritate the third and fourth cervical segments of the cord and produce pain in the region of the right shoulder.

This pain, remember, is reflex, and may be far from the site of the lesion. It bears no relation to te location of the affected organ in the abdominal cavity.

These spinal nerves have both posterior and lateral branches. Pain may, therefore, be referred to the back or around the side of the chest and abdomen.

**The pain produced by pinching the skin and subcutaneous tissues.** —This has been called by Mr. Ligat "The Viscero Sensory Reflex." When elicited it is of very great value in determining the organ affected. It has no negative value. No disease is to be ruled out by its absence. It is based upon the same anatomic facts as the reflex pain previously referred to. It cannot be confused with pressure pain as no pressure is to be made in eliciting it.

**Method of Eliciting the Reflex.**—The patient lies on his back with mouth slightly open and his arms by his side. The skin is picked up between the thumb and fingers and lifted away from the deeper structure and pinched. This maneuver is first applied to an area where a normal response is practically always gotten, viz., the left hypochondriac region. This helps to determine the normal response of the individual, which varies widely in different individuals; a positive response consists of pain denoting increased sensitiveness either slight or marked. The facial expression of the patient is watched carefully as the same maneuver is applied to the various points which may give a positive response. When an area of hypersensitiveness is found, the point of maximum intensity is to be determined, also the direction and limitation of the spread. There will be vertical but no lateral spreading. The vertical spreadings may be over the zones corresponding to two or three spinal segments, but there is a point of maximum intensity in this vertical line.

(See diagram for location of the various areas).

As before stated, this reflex is of great value when present. Its absence rules out nothing. The intensity of the reaction will depend upon many factors, the acuteness of the condition, the sensitiveness of the patient, as in highly nervous individuals. Severe pain will render the reaction obscure.

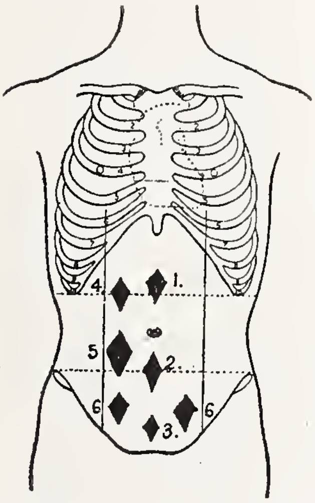

Diagram showing the areas where hyperalgesia is elicited when present. The width of the shaded area does not denote lateral spread, but merely represents degree intensity of reflex in typical cases. Gastric and duodenal area: maximum point midway between ensiform cartilage and umbilicus. Small gut area: maximum point at junction of upper and adjacent fourths of a line drawn from symphosis pubis to umbilicus. Gall bladder area: the maximum point is situated where a horizontal line drawn from the tip of the tenth rib crosses a vertical line drawn midway between the nipple line and the middle of the abdomen. Appendix area: maximum point at junction of inner and middle thirds of a line drawn from the anterior superior spine to the umbilicus. Fallopian tube area: maximum point at junction of lowest adjacent fourths of a line drawn from the middle of Poupart's ligament to the umbilicus.

It has been suggested by Mr. Ligat that thrombosis of the mesenteric vessels of the appendix or small intestines may cause the reflex to be absent. He also states that there is a small group of cases in which the absence cannot be explained at present. It is not present in general peritonitis.

Confusion may arise from the presence of two positive reflexes in a given case; for instance, in appendicitis a positive reaction may also be gotten in the small gut area as well as the appendix area and irritation in the terminal ileum.

The matter of personal equation upon the part of the physician will enter very largely into the work of eliciting and interpreting this reflex. This may, however, be said of most every physical sign of which we know.

**Pressure Pain.**—This pain is elicited, of course, by making pressure on the abdominal wall. It may be due to a cutaneous hyperalgesia or to inflamed peritoneum; in the latter case it is not referred. It marks accurately the location of the peritoneal irritation, but not necessarily the organ affected. It may be late in appearing in an acute case, depending upon the time at which the parietal peritoneum becomes involved.

These three types of pain may be located at three different points and their very location thus far apart serves to make the diagnosis certain. For example, an inflamed appendix may be situated in the upper left quadrant of the abdomen, as in the case of unrotated caecum, in which case the reflex pain complained of by the patient would be in the umbilical region. The hyperalgesic area at the appendix point in the lower right quadrant and the pressure pain at the site of irritation of the parietal peritoneum in the left upper quadrant.

**Vomiting.**—All the conditions which give rise to abdominal crises are attended by vomiting as a rule. This is a first reflex whatever the pathology. It usually passes off in twenty-four hours. When it persists from the beginning without intermission, or recurs after having stopped once, it strongly suggests peritonitis or obstruction.

**Muscular Rigidity.**—There also may be a reflex phenomenon, and is called the viscero-motor reflex. It is based upon the anatomic conditions previously referred to, but in addition, may be due to irritation of parietal peritoneum, the latter being more resistant.

The presence of a persistent involuntary muscular rigidity of the abdomen is an unfailing sign of serious intra-abdominal disease, usually inflammatory in type.

Voluntary is to be differentiated from involuntary rigidity. Three points will usually differentiate them

(1) In the case of voluntary rigidity there is a moment of relaxation at the end of expiration or just at the beginning of an inspiration. This is not the case in involuntary rigidity.

(2) Gentle pressure with a warm hand will cause voluntary rigidity to give way, but not so with involuntary.

(3) The distraction of the patient's attention will usually cause the voluntary rigidity to give way, but not so with the involuntary. It should also be mentioned that morphine, though it relieves pain completely, even pain on pressure, will not completely relax an involuntary rigidity.

**Distension.**—Gas in the intestines is differentiated from free gas in the peritoneal cavity by tympany over the liver, and in case of free gas there are usually signs of a ruptured hollow viscus.

Free gas injected into the peritoneal cavity will always give pain in the right shoulder if it reaches the diaphram above the liver.

A distension which persists and shows a gradual increase suggests obstruction very strongly, and with no flatus passed almost makes a diagnosis.

Free fluid in the peritoneal cavity in connection with an acute crisis can be due to but three conditions: the rupture of an ectopic gestation; the rupture of a large cyst; or perforation of a hollow viscus.

Blood and serous fluid will not irritate the parietal peritoneum so as to produce rigidity. The acid content of the stomach produces at once a board-like rigidity.

**Swelling.**—Pelvic and abdominal. I shall only discuss swellings which may occur in a crisis. They are from appendicitis, cholecystitis, pelvic inflammations, and intussusception. The mass felt in the case of acute appendicitis is as a rule omentum, and usually the rounded portion is up in appendicitis and down in cholecystitis.

Pelvic swellings will be determined by pelvic examinations.

**Rectal Examination.**—This examination should be made in every case of crisis in children and may be of great value in grown-ups.

Appendicitis and intussusception in children will often be diagnosed by rectal examination when diagnosis by any other method at the moment would be impossible. Dr. William A. Downes strongly emphasizes this point in examining children, as in these youngsters acute appendicitis may proceed to rupture and peritonitis very rapidly, and without giving the usual signs observed in adults.

So much for the symptoms—we will now briefly consider some points of differentiation. But before doing so, two conditions which may simulate abdominal crises should be considered briefly. They are: (1) crises which occur in tabes, and (2) those which occur in basal pneumonia and diaphragmatic pleurisy.

The absent knee jerk and the pupillary reflex will strongly suggest tabes. In the case of thoracic inflammation the pain and rigidity are of course reflex, due to the proximity of the sixth, seventh, and eighth dorsal nerves. In these cases a little pressure will usually relax the rigid muscle. Pressure will soothe instead of aggravate the pain. The temperature is higher, the onset more sudden than the inflammatory conditions of the abdomen. The pulse-respiration ratio will suggest chest. Also the viscero sensory reflexes will be negative.

The conditions which may give rise to acute abdominal crises are, for convenience, separated into five groups as follows:

(1) Colics—intestinal, renal, biliary.

(2) Perforations—stomach ,small intestines, and large intestines.

(3) Hemorrhages—ruptured ectopic chiefly.

(4) Inflammations—appendicitis, cholecystitis, pancreatitis and salpingitis.

(5) Obstructions—acute intestinal.

**Colics**—Especially renal and biliary colics are very sudden in onset; severe, and stop suddenly, and have a strong tendency to recurrence. The typical pain in each will not be discussed. In lead colic pain is diffuse over the abdomen, but the pulse is retarded and pressure on the abdomen is found to soothe, not irritate the pain. The typical blue line in the gums may be seen **if looked for.** There may be muscular rigidity in these conditions, but it is reflex and yielding, unlike the rigidity from inflammation of the parietal peritoneum. These conditions will not be attended by the degrees of shock met with in the other group which have the same suddenness of onset and severity of pain.

**Perforations.**—This group has a sudden onset with a marked degree of primary shock. Rigidity also comes on at once, and is of the unyielding type produced by irritation of the parietal peritoneum. The history and signs may point to the location of the perforation.

**Hemorrhages.**—A hemorrhage in such quantity as to produce a crisis may come from a gastric or duodenal ulcer, a typhoid ulcer or ruptured ectopic gestation. Hemorrhage into a cyst may also produce a crisis.

In the case of hemorrhage into a hollow viscus, there will not be the pain seen in other conditions. The blood will usually escape through a natural orifice fairly early, there will be the general symptoms of bleeding.

In the case of ruptured ectopic there may be sudden pain, shock and fainting with a rapid reaction, and a relapse either slow or rapid. There is a wide variation in the severity of these cases. By far the larger percentage are mild. The bleeding is slight, the trauma slight. They are most often entirely overlooked. There is not that sustained shock and agonizing pain as in the case of perforations. There may be a tenderness low down. There may be some reflex rigidity, not the unyielding type. The free blood in the peritoneal cavity is not irritating at first. Later when it clots it will be irritating to some extent. The rigidity so characteristic of perforations is not present. The history of some menstrual irregularity and some uterine flow at the moment are characteristic.

The conditions with which a ruptured ectopic is usually confused are two of the inflammatory group, namely, appendicitis and salpingitis. If an accurate history of the onset can be gotten it will be of invaluable aid in differential diagnosis. The inflammations do not give a sudden onset. The pain after being present for a while may suddenly become more violent, but it is never sudden in its real onset as in the case of ruptured ectopic—nor is the same degree of shock present. In the case of inflammations, the onset is found to be gradual if an accurate history is gotten. There was discomfort before the severe pain began—the pain begins and becomes more severe as the disease progresses.

Pelvic examination and a test for points of cutaneous hyperalgesia will be of value.

Hemorrhage into a cyst may resemble closely a ruptured ectopic. Its presence will be already known in all probability and its increase in size noted.

**Inflammations.**—As before stated, the onset in this group of cases is not sudden. It is gradual, an accurate history will reveal that the discomfort was at first mild, developing more or less rapidly. Also, the pain is not so severe nor is shock so marked as in other conditions. **Fever may or may not be present at the moment—a rectal temperature only should be relied upon.** It will depend upon the degree of primary shock and the rapidity of reaction. This is the only group of these conditions giving a temperature. An effort should be made toward an accurate observation on this point.

Tenderness will be present, maybe not marked at first, but present and most marked at some one point.

The viscero-sensory reflex will be present with the exception mentioned. Muscular rigidity will be present; it may be yielding ing reflex type at first to become unyielding as the parietal peritoneum becomes irritated.

Swelling may be present early in these cases.

Rectal examination will elicit tenderness both in appendicitis and salpingitis.

The differentiation of the various conditions in the inflammatory group may be difficult. The difference in previous histories, the difference in their onset, the difference in the point of maximum tenderness—the point giving positive viscero-sensory reflex—the locations and relations of the mass if present, the information obtained by pelvic or vital examination will in a majority of cases differentiate them.

The differentiation between appendicitis and salpingitis may be more difficult. The same points above mentioned, together with the information gotten on careful and complete vaginal examination will, as a rule, make the differentiation.

One condition belonging to the inflammatory group resembles clinically a rupture more than an inflammation—that is acute pancreatitis. It is rarely diagnosed and is usually confused with the rupture of a viscus.

**Obstructions.**—The onset may or may not be sudden—depending upon the location of the lesion and the character of the obstructive lesion.

The persistence of the vomiting from the first—the progressive abdominal distension and the failure to pass flatus, are the three characteristic features which, with the absence of the usual signs of other conditions, should make a diagnosis. Peristaltic waves and the appearance of individual coils of small intestines may be present in a thin abdomen. These phenomena are observed in chronic obstruction or in an acute case engrafted upon a chronic one.

There are some other conditions which may give rise to abdominal crisis. Two in particular should be mentioned, namely, diverticulitis and ovarian tumor with a twisted pedicle.

The usual conditions have been discussed—especially those in which the greatest problems of diagnosis arise.

It is to be admitted that errors in diagnosis will be made by men, however careful their search for clinical evidence. It is also true that the more careful and diligent the search and the more careful the interpretation of findings, the fewer errors will be made.

Some of these cases are operative and some are not. Careful work will differentiate the two in most cases and make a technical error in diagnosis of no particular harm to the patient. To make the error of placing a case of obstruction in the group of colics may lead to a tragic end, whereas, the reverse likely would not. To place any of the perforations or inflammations, except salpingitis, in the group of colics would be an error in a bad direction. To mistake an acute appendicitis for a ruptured ectopic would lead only to the error of an inconvenient incision with no resultant harm to the patient.

The grouping of the case is of primary importance. Then, if possible, the differentiation of the individual case from others, in the same group may or may not be of great value.

The following points should be emphasized:

(1) An accurate history—This is difficult to obtain, and when inaccurate may be very misleading.

(2) The symptom, abdominal pain should receive careful analysis.

(3) Rectal examination in children.

(4) Rectal temperature to be the guide as to presence or absence of fever.

(5) The five case groups, if borne in mind, will greatly facilitate diagnosis by exclusion.

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## LUMINAL IN THE TREATMENT OF EPILEPSY WITH REPORT OF CASES.*

By Jesse C. Hill, M. D., Bearden.

Luminal chemically is phenyl-ethyl-barbituric acid and differs from veronal (diethyl-barbituric acid) in that one ethyl group has been replaced by a phenyl group. Luminal has a sedative action on respiration, lessens the frequency, but increases the volume. No renal or gastric disturbances have been observed. It is eliminated chiefly by the kidneys and a certain part is decomposed in the kidney. It kills by respiratory paralysis. The sodium phenyl-ethyl-barbituric acid may be given hypodermically. Dose 3 to 5 grains.

Before we enter into the discussion of luminal in the treatment of epilepsy, let me emphasize that I am not advocating luminal as a cure for epilepsy, but I believe it is a very beneficial drug in the treatment. We have obtained better results from luminal than any treatment instituted.

Dr. Francis X. Dercum presented an article through the medical press in December, 1919, advocating luminal in the treatment of epilepsy. We have followed his treatment for the past year with interesting results. Doctor Dercum suggested the following treatment:

1. Give patient a thorough cleansing of the alimentary tract by magnesium sulphate or some other saline cathartic.

2. The following day start patient on 20 grains of sodium bromide three times a day for ten days, then cut the dose to ten grains three times daily for one week, and then discontinue the drug entirely.

3. The same day the bromides are instituted give patient one and one half grains luminal at bed time and continue same as long as necessary to control the convulsions.

**Case 1**—C. H.—Patient has been an inmate of our institution (Eastern Hospital for Insane) for the past eight years and would have two or three grand mal attacks each day. Since taking luminal the following table shows the results:

January, February, March, none; April, 1; May, 3; June, 5; July, 1; August, 2; September, October, November, December, 1 each.

**Case 2.**—L. T.—Patient has been inmate of our institution for three years, and would average four or five grand mal attacks a week. Since on the luminal treatment she had in January, February, March, April, none; May 1.

During the month of June this patient fell and fractured a leg and died from complications.

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*Read at Annual Meeting of Tennessee State Medical Association, at Nashville, April, 1921.

**Case 3.**—M. D.— Patient has been an inmate of our institution for two years. Patient would have several petit mal attacks each day. On luminal treatment she had:

January, 11; February, March, none; April, 3; May, 2; June, none; July, four; August, 11; September, 6; October, none; November, 6; December, 10.

**Case 4.**—J. C.—Patient has been an inmate of our institution for past three and one half years. Patient would have several grand mal attacks most every day, usually from two to fifteen. Since on luminal treatment this patient has had the usual number, though the dose has been doubled.

**Case 5.**—P. H.—Patient has been an inmate of our institution for two and one half years, and would have a grand mal about once a week. Since being on luminal treatment, she has had the following attacks:

From January through April, none; May 5; June, 1; July, 4; August and September, none; October, 3; November, 2; December, 1.

**Case 6.**—M. W.—Patient has been an inmate of our institution for about one and one half years. Patient would average one or more grand mal attacks a week and during these attacks it would take all the attendants obtainable to keep her from whipping out the ward. On luminal treatment she has had the following:

January, 2; February, none; March, 3; April, 2; May, 3; June, 2; July, 4; August, none; September, 3; October, 1; November, none; December, 1.

An interesting feature about this case was that besides the marked decrease in number, the attacks this patient had were very light and patient was not hard to control.

**Case 7.**—I. M.—Patient has been an inmate of our institution for about two years, and would have from two to five grand mal most every day. Since being placed on luminal treatment this patient has had the following attacks:

January, none; February, 3; March, 9; April, 2; May, 1; June, none; July, 2; August through November, none; December, 1.

**Case 8.**—M. L.—Patient had been an inmate of our institution for about two years and would have two or three attacks most every week. While on luminal treatment she had the following attacks:

January, 1; February through May, none; June, 2; July, 3; August and September, none; October, 4; November and December, none.

Patient died March 8, 1921, from angina septica.

**Case 9.**—L. Mc.—Patient has been an inmate of this institution for nearly two years, and would have very hard grand mals two or three times almost every week. Since on luminal treatment she has had the following attacks:

March, 1; April, 6; May and June, none; July, 5; August, 3; September through December, none.

Another interesting feature about this case is that during seizures this patient was very violent and dangerous, but the seizures since being on luminal treatment are very mild.

**Case 10.**—M. Mc.—Patient was admitted to our institution September, 1920; and during one of her epileptic seizures fell and fractured her hip. Patient would average one to two grand mal attacks every week. She was put to bed and given luminal treatment with the following results, besides a good leg:

December and January, none; February, 1; March, none.

**Case 11.**—G. H.—A negro man who had been an inmate of our institution for fourteen years, and for the past few years has averaged two or more grand and petit mals a day. Since on luminal treatment he has only one about every three weeks.

**Case 12.**—G. J.—Patient has been an inmate of our institution for three months. The doctor who accompanied her to our institution said she had attacks at frequent intervals. She was placed on luminal on admission and to the present time, which is about three months, she has had no convulsion.

**Case 13.**—F. C.—Patient would have one or more petit mals every night, but since taking luminal has had only one in three months.

**Case 14.**—R. H.—Patient would have one or more grand and petit mals every day. Since on luminal, patient only averages about one a week.

**Case 15.**—L. K.—Patient would average one the three months.

**Case 16.**—J. M.—Patient would have a grand mal most every day, but during the three months on luminal has only averaged about one a week.

**Case 17.**—P. G.—Patient would have one or more hard grand mals each day, but during three months on luminal has only averaged about one a week.

In conclusion it should be stated that every case referred to above was idiopathic, so far as could be ascertained; other conditions being eliminated by clinical and laboratory findings. We had one case, convulsions due to syphilis, which was given luminal for about one year with no results. We have had several patients who have gone for a considerable length of time without having a convulsion, and discontinue the luminal. When they would recur, place them on the drug again and they would stop. We have obtained good results in many other cases not referred to; no bad results, and only one case which the drug apparently had no effect.

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## DISCUSSION.

DR. SCOTT FARMER, Nashville: I am very glad indeed to have heard Dr. Hill's paper. The experience that the Eastern Hospital has had is similar to ours at the Central Hospital. After seeing and reading Dr. Dercum's article, we began the use of luminal at the Central Hospital. Owing to the difficulty of securing the medicine, we only tred it out on two ore three patients for a short time, but since July we have had over fifty on the treatment. We have two or three patients who have gone ten and eleven months without having a convulsion. We have several others that will have a seizure once a month, others that have a convulsion once a week. Others go two or three months without a convulsion. It has helped and has been a benefit to every case to some extent. However, the drug is not free from danger.

The essayist referred to the fact that when you quit using it sometimes the convulsions will recur. Those who have had the most experience with the drug, after using it for several months, say that if we stop it suddenly there is a possibility that the condition known as status epilepticus will occur, and the patients will have one convulsion after another until they die. That is the only trouble I see in using luminal. Not all cases do that, but we are still in the experimental stage in the use of this drug, and it is like catching a bear by the tail—as long as you hold tight you are all right, but when you turn loose you have "lost control." When a patient is put on luminal, and then you turn him loose or cut off the drug, the convulsions often recur. As long as you continue to give it the majority of patients get along well. Some gain thirty or forty pounds in weight. They are better physically and mentally, but I have a fear and dread when we quit giving it.

We had a patient whose husband came a few days ago and took her home. She had not had a convulsion in several weeks. We controlled the convulsions by keeping up the treatment with luminal. She had another convulsion a few days after she got home, and she was insane. He brought her back and before we could get her under the influence of luminal she developed status epilepticus and died. She died so quick that after coming back, he may have had some suspicions that possibly we mistreated her. That is just a warning I want to throw out, namely, if you begin to give luminal, you must keep it up indefinitely.

DR. HAZLE PADGETT, Nashville: How many cases have developed status epilepticus?

DR. FARMER: Only one. However, I wish to say this, that according to reports from the Craig Colony of Epileptics, New York, with the experience they have had in that institution, in a certain percentage of the cases after they have quit using luminal status epilepticus has been developed.

A MEMBER: Do you take these patients off the drug gradually?

DR. FARMER: We use it for twelve or fifteen months and then begin reducing it gradually.

There is another thing I want to call attention to, namely, a lot of these patients, when they do not develop seizures, become irritable and cross and complain.

I want to say, as Dr. Hill has pointed out, luminal is a valuable remedy—in fact, it is the most valuable I have ever used in the treatment of epilepsy and I would advise you all to try it. While under the law we are not supposed to take epileptics except where they have a psychosis, yet we should not commit a man to an institution until we first try out luminal. But when you begin it, try to keep it up indefinitely.

DR. J. J. WALLER, Oliver Springs: I do not wish to discuss the paper so far as the treatment with luminal is concerned, except to say this: From the reports that have been given here, it seems to me the effect of luminal is too temporary and too much like giving morphine to relieve pain. You have got to keep it up.

I wish the doctors who have charge of our institutions and have a good chance to try out remedies will try a remedy that I have tried in treating one or two epileptics. Three or four years ago one of these unfortunates fell into my hands, and I put him on tablespoonful doses of iodized oil, put up by one of our manufacturers. It is an intestinal antiseptic. I put the patient on tablespoonful doses three times a day, and his epilepsy ceased. I see this man every once in a while, and he has had no return of the convulsions. I do not know what it would do if tried out in a number of cases. I have reason for believing it is a good remedy. The epileptic has a natural tendency to fly off at a tangent, and there has to be some excitant in addition to that, and that excitant frequently is a disturbance of the digestive apparatus. This iodized oil is soothing to the intestines; it is not absorbed as butter or fat, or cod liver oil, and it does not go into and make food for the system. As it is soothing to the intestine, the iodin that goes with it may have an alterative effect. I report good results from my trial of it, and I wish I had more cases to try it on.

DR. W. SCOTT FARMER, Nashville: I would like to ask Dr. Hill a question. He spoke of one epileptic who died from complications, and I would like to ask him whether that patient or any of the patients have had convulsions before they died?

DR. W. K. SHEDDAN, Columbia: The management of epilepsy is an eyesore for the profession. Nearly always the bromides have been our chief reliance in the ordinary types of epilepsy as we have seen them. As far as I can go back, epileptics are quite common, and we have several types of epilepsy. We have the sensory, the motor, and psychic forms of epilepsy. It has been my misfortune to deal with many epileptics. Last year in July I saw the report of Dr. Dercum and at that time I had four epileptics under my observation. One of them was a boy who manifested epilepsy at three or four years of age. He had taken bromide from that time up until last year. He was having occasional attacks of epilepsy. He would go into an epileptic attack that would last from twenty-four to forty-eight hours, that is to say, he would have half a dozen convulsions in the twentyfour hours. He was one of the first cases that I saw in July. It has been the rule in the management of epilepsy to look positively to some extent on a faulty elimination, a condition of acidosis, and things of that sort. His elimination was not good. I gave sulphate of magnesia every night to move the bowels each day. While he had been taking that, he had a profuse active bromide eruption. His mental condition was beginning to show its impairment from the bromide. Many of these cases undergo mental impairment from chronic bromism. I put him on three grains, a grain and a half in the morning and a grain and a half in the afternoon. He has had no epileptic seizures since. He has been carefully watched and carefully looked after.

Of the epileptics beginning in childhood, or epilepsy in patients eighteen or twenty years of age, or under sixty years of age, a large percentage of them are syphilitic in origin, and in connection with these, antisyphilitic treatment comes in.

Then we have a type of epilepsy which a great many practitioners see in the senile, showing vascular changes in the brain or in the cerebral circulation. Of these senile epilepsies I have seen some fifteen or twenty cases. I remember a man and his wife, both eighty years of age, in whom the epilepsy showed up for the first time in the same week. Of the ten or twelve cases I have had, luminal was given to the extent of three grains a day in the beginning, and I finally got them where they took only one dose a day. In the cases I have suspected to be of syphilitic origin, I have had no Wassermann test made, although I felt quite sure from the clinical history they were of syphilitic origin.

There has been only one attack in one of the cases I have had since last June. It is remarkable to see the improvement that takes place following the administration of luminal. I do not believe it cures epilepsy, because when you withdraw the drug, the epileptic attacks will return. However, I look upon luminal as a valuable addition to our armamentarium in the treatment of this very distressing condition. There is nothing more distressing than to have a young person in the home who is an epileptic. I am glad indeed that we now have a remedy that has given such splendid results in my hands.

DR. A. W. DEANE, Pulaski: I wish to speak of one case which I have had on luminal for the past eight months. He consulted several different doctors and myself, and had given him treatment for this epilepsy with no results until I put him on luminal. After a saline I began him with 1 grain three times a day. I soon found that he could not work, which he must do for his daily living. He came to me and said, "Doctor, I cannot work and take this drug. I have been told that you are giving me a "dope" and that I had better quit it." I assured him that he was not getting any dope. I also said to him, "Are you going to believe these parties or me?" and his reply was. "I will follow your instructions." Whereupon I told him he must take the drug or have epilepsy. Then I increased his dose to one and one half grains twice a day, night and morning, but finding that this kept him sleepy, I gave him one and one half grains at bed time only, and gave him instructions to take an internal bath bath of epsom salts once or twice a month. This man still seemed sleepy, so I reduced him to one grain at bed time, which controlled his paroxysms, night. He has only had one attack since I put him on luminal, and this attack was about fifteen to twenty days after he began this drug.

(I since the meeting reduced this case to one half grain at bed time, which controlled his paroxysms, until just a few days ago, when he had one fit, so I at once went back to one grain at bedtime.)

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DR. JESSE C. HILL, Knoxville (closing): In the case of Dr. Farmer referred to, I will say that the patient died from pneumonia. In regard to the dosage, we have had no experience with small doses, but I do not see why these patients should not be benefitted just as well by small doses more frequently repeated as large doses given at one time.

# SOME OF THE NEEDS OF OUR STATE HOSPITALS FOR THE INSANE.

By R. E. L. Smith, M. D., Bearden.

In Tennessee there are three state institutions for the care and treatment of mental and nervous disease, with an aggregate population of 2,329 plus. These are generally referred to as "unfortunate," and so they are in that heridity, environment, and habit have combined to make a sadness of their lives; but once they have reached a refuge in one of the great hospitals provided by the State, although these are not equipped to the extent we most desire, I prefer to think of them as fortunate—fortunate to be out of the whirlpool of competitive existence for a time, and fortunate to be cared for more wisely than 95 per cent of families can care for a mental case at home. Many of these cases improve and recover when gotten at the proper time. With improved methods of today, the percentage of improvements and recoveries is continually rising. This is a real salvage well worth while. These hospitals in Tennessee, even with their present equipment, are going institutions, and not simply places to keep the insane until death releases them, as so many people in their ignorance imagine. I could relate case after case of improvement and recovery, but this is not necessary if you will remember that they can and do "come back." This being true, it follows that a hospital for the care of mental cases must be a place for treatment as well as custody, and, in view of the wonderful advances in the last few years in reference to the management and treatment of the insane of our country, we are awakened to the fact that our buildings are inadequate and illy constructed for the ends we desire to accomplish.

The hospital of today offers an entirely different problem to the hospital of a short while ago. Long ago it was considered if a man were insane, nothing could be done for him except send him to the asylum, and asylum it was; the removal of the man from society and custodial care was all there was to it. He was never expected to return, and if he did, every one was afraid of him, or he was looked upon as a curiosity and would be a good drawing card for a side show. Under the modern way of thinking, he should be sent to a hospital for treatment with a view of restoration, and custodial care comes last.

The complexities of the administration of hospitals are many, representing practically every activity that enters into our social and economic life and the vision of the administration must be sufficiently broad, if the hospital is to function properly, to grasp all the demands. All these activities require the expenditure of money, and, in some instances, exceedingly large expenditures. Therefore, the utmost diligence is required in order that a maximum return may be received for the dollars spent.

In the past, hospital boards of trustees did not require of their institutions the efficient performance of duty that has been, and is being required at present. Lay methods and inadequate performance of duty prevailed. Efficiency is now the watchword. It follows then that the hospital cannot be considered as just a building or a group of buildings, but is, in the larger sense, an idea typifying one of the greatest services than can be rendered mankind.

At the time our maintenance allowance for Tennessee's hospitals was made, food and raiment was all that was expected. Hence, it was a small amount, and this is now inadequate. The salaries of our doctors have been, and are still, too small. Men who are qualified to do this work are qualified to cope with the sharpest competition in outside practice. Why should the state expect her employes to work for less than they can make in general practice? The very secret of success is to employ efficient men and to keep them requires efficient wages. So here is one of the important needs: a higher maintenance fund, which will require an increased per capita. When we come to think of it, the great expenditure that is required for salary, supplies, postage, telephone and telegraph, insurance, administration expense, laundry, housekeeping, heat, light, power, maintenance and repair, surgical and drug expense, etc., it is wonderful that we have accomplished as much as we have on so small an amount as our present per capita allowance—$190 per annum. It should not be less than $300. Perhaps you may think I am wandering from the subject, but realizing as I do the possibilities of these institutions if properly financed, I can't refrain from making mention of the money requirements or needs. The public is rapidly being educated along hospital lines and so much more, and justly so, is required of us, we feel keenly the rebuke if we fall short of a reasonable improvement in the results of our labor.

It is only necessary on this occasion to merely mention the therapeutic measures or agents at our disposal in this work, viz., release from competitive existence and unfortunate home conditions, regular hours and long nights of rest, a simple but abundant and well balanced food ration, hydrotherapy, simple types of industrial occupation without the accompanying strain of responsibility. All these minor agencies combine to bring about improvements, but the greatest of all remedies is occupation. Physical activity is an outlet for emotions: a stabilizer of ego. A child is practically always physically active, and quite miserable if not. With increasing age this activity becomes less manifest, while physical and mental ills become more and more frequent. Inactivity of body is physiological in old age, but pathological in early life. A large part (50 per cent) of the patients in our hospitals are under forty, and of these, the majority are cases of dementia praecox, which you know is a mental disturbance in which, after a brief period of excitement, there follows a more or less vegatative or ruminative condition in which there is little or no display of interest in matters outside of narrow confines of imaginative thought. Emotion, the vitalizer of our mental life, is apparently absent, save in connection with the patient's fancies, where its manifestation often seems as remote from the real things of life and as unintelligible as the "northern lights." Occupation, or "busyness," brings about physical activity accompanied by the vitalizing emotions of early life, and it follows that in these cases of dementia praecox this physical activity or training brings about an orderly character of activity by which we hope to afford an emotional outlet, and thus clear the way for the return of wider interests and a partial, if not complete, return to normal.

In every state hospital for the insane there should be a vocational training department, an amusement hall, gymnasium, a department for habit training, and intensive training of patients in the practice of lacing and unlacing their shoes, buttoning and unbuttoning the garments worn, braiding the hair, etc., should be given. In the beginning it will doubtless be an exceedingly hard task to secure the interest or concentration of the patient's mind long enough to complete the act, but persistence and perseverance will accomplish much, and fairly tidy patients can be made of the most untidy. A great work is being done in the state hospitals among patients suffering with one or another form of mental disorder. We deal with crippled minds instead of crippled bodies, and yet there is no essential difference between this work and the work that may be done with countless thousands of physical invalids. The bodily disabled are too often mental patients as well, only the mental disorder is not recognized, or if so, is curiously classified as irritability, discouragement, sullenness, etc. A fresh significance has come to be attached to the term "re-education," during the past few years as a result of the attempts to train certain patients, who, because of injury, are unable to follow out their usual occupations and must be prepared to take up work along other lines. We have come to understand as never before the possibility of a complete functional restoration of those who have been either practically or totally disabled by wounds. The necessity for a systematic attempt to restore such individuals to usefulness by special training has been recognized by each of the countries that took part in the great war, and now great sums of money, much time and energy are being expended to assist those who have sacrificed so much to again become efficient and economic factors in the world's work.

The success of this vocational training has been productive of far-reaching results aside from the benefit to those under immediate treatment. It has taught the industrial world that a place can be made for every accident victim if the man be prepared by re-education to fill it. The modern conception of the ideas of reconstruction as applied to human bodies has become a part of the treatment of many physical diseases; as for instance, the sufferer from tuberculosis, following the subsidence of the active stages, is now treated by occupational therapy and vocation training in order that he may be self-supporting. Practically every department of medicine has profited by these lessons and now recognize the fact that complete restoration to usefulness of any individual has a social as well as a medical side, and patients must be placed in the environment best suited for their individual needs. If these things are true for the sane, why may they not be true for the insane? It certainly seems to me that in psychiatry these lessons are particularly applicable. It is true that the general principles of re-education have been applied to certain classes of mental patients for many years, but in a haphazard way, and it is only within a very short time that any systematic attempts have been made to re-educate the insane.

In the wards of our hospitals we have a large number of patients who are badly demented. These wards are the most depressing in the hospitals. The patients are apathetic, sloven, and untidy in their habits, and sit around on benches with their heads sunk on their chests or bowed over with their heads resting between their knees, or they are active, noisy, and destructive. The power of directing the minds and energies of such patients to a state of usefulness has until recently been lost sight of and they are left unable to fit into any community life. In a large percentage their psychoses have followed disorganizing habits of thought and action. These are almost inaccessible as a result. So a different problem confronts us in the care and treatment of this class, and as this class furnishes so large a percentage of our hospital population at this time, we need a more adequate equipment to reach this class of patients. This degeneration of patients to the filthy, destructive stage of their diseases is, in all human probability, due to habit deterioration. This being true, the treatment is obvious: First, by means of training prevent the forming of these vicious habits before the condition becomes fixed. Second, to form new and better habits in those who have sunk to this low mental level.

It is evident that if any system of re-educational schemes is to be carried out successfully it must be under the direction of one who is conversant with the principles involved and who has had scientific training. Some careful analyses should be made to discover the best avenue of approach to the interest of the patient. No matter how inacessible he may be, apparently, there is always some point where the instructor can meet the patient on common ground, and his interest can be stimulated. One must search out that particular point in the consciousness where an entrance can be made to interest the patient and from there on the problem becomes much simpler. As our instincts are the basis of all endeavors, the motive power of all thought and action, and the base from which character and will of the individual are developed under the guidance of the intellectual faculties, it is by means of these hereditary tendencies that we are able to make definite adjustments to the environment. These reactions become more efficient if the instincts are modified by education, selecting and preserving certain ones, eliminating others, and recombining into new complexes the elements of behavior found in other relations. Certain of these innate tendencies are antagonistic to each other, the strongest predominating. One instinct may completely govern the individual and dominate him to such an extent that other instinctive forms of behavior can find no means of expressing themselves, which explains the various reactions in the psychotic individual. For instance, in fear the reaction according to this temperament is delusion of a paranoid type or by withdrawing from the rest of the world. We believe it possible to substitute one instinct for another, and this is the basis upon which our success in the re-education of psychotic patients rests.

In our work we find the instinct to play, imitation, constructiveness, affection, sympathy, self-assertion, curiosity, and rivalry afford us the best avenue of approach. In the instinct of play we find the best opening for most individuals, and this is one of the most serviceable forms of instructive expression that education can avail itself of to direct conduct. This instinct is accompanied by the emotion of pleasure, which is valuable in itself. It also stimulates the imagination, this in turn develops intelligence, and by an almost imperceptible gradation it can be transformed into useful work without any diminution in affective coloring.

We might take up all the various instincts and reasoning by cause and effect elaborate on them, show just how each instinct will react to the benefit of the patient, but suffice it to say that these natural tendencies which have been enumerated are the most powerful factors in awakening the interest of patients. By their very force they may be made to take the place of the more vicious instincts which are unquestionably at the bottom of so many psychoses. So by putting one strong instinct into competition with another, conduct may be so controlled and modified that the life of the individual may be directed into an entirely different course.

I have thus spoken for the purpose of showing what we think can and is being done for the insane as well as the sane. In a very crude and feeble way we have been doing work along the lines indicated, but in order to do the most good we are sadly in need of sufficient equipment for the accomplishment of these ends. We realize the fact that to be properly equipped would require the outlay of a large sum of money, so we have contented ourselves with doing things in a small way with the crude equipment we now have and must say that our results have been gratifying, and we believe, with proper equipment, they would be marvelous.

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## DISCUSSION.

DR. W. K. SHEDDAN, Columbia: The management of the insane in any country or under any conditions is one of the most important things that comes before the medical profession and general public as well. It is a subject in which the people of this country and the profession are both vitally interested. The insane individual is a sick individual. He is neither a criminal nor a pauper, and frequently I believe, with proper care and proper conditions, and under proper surroundings, he or she, as the case may be, can be cured.

I think the most sane view I have heard expresed regarding the management of thee cases was that of Governor Parker, of Louisiana, when he appeared before the meeting of the American Medical Association last spring, and said to the members in a general address, "Gentlemen, I have arranged to secure a sufficient amount of money to pay an efficient staff to run these institutions in a way to get the best results possible in the way of cure, and if we have not got the men in the State of Louisiana who are capable of doing high class work in this line, I want you, as a representative body of the great American medical profession, to select men regardless of what it costs. I want results in regard to cures, and I am not so much interested in the cost per capita for the care of these patients."

The men in charge of these institutions should be executive officers, and should not present long, windy reports and not give the percentage of cures in proportion to the number of admissions. That is not the object of these institutions.

There is a tendency at the present time to blame the superintendents of these institutions, but it seems to me we should blame the law makers or whoever is responsible for the conditions that exist. Our state and public institutions are not built for people who are able to pay for treatment. That class of people can go to private institutions.

With the ruling of the Board of Control or the Board of Administration today it is a well known fact that it is impossible to get a patient in one of these public institutions if his great grandmother owned a piece of land one hundred years ago. Gentlemen, I have had some experience of late, and I am not blaming the superintendents, but I am blaming those who are responsible for such a state of affairs. I have got patients now, and have had patients for the last year or more, where the Board of Administration is letting dependent mothers and fathers take care of sons in these institutions that are twenty-seven or thirty years of age. These old people, because they own a poor farm, one that barely furnishes them a living, have got to pay to this great State of Tennessee $100.00 a quarter for the care of these individuals. Is that right? I think not. These institutions were not built for that purpose. I contend that if the appropriations are not sufficient to care for these people, better say so.

The limitation of per capita of the population is another difficult proposition to handle. In some particular localities we have much more of this condition to deal with than in others. These poor unfortunate people need some means or some place, and a great many institutions are needed as custodial institutions. It is a crying shame to put these people in jail, because they are not criminals, and they should not be put there.

The attitude of Governor Parker of Louisiana has taken in regard to the care of these people is the only sensible and really scientific, broad-minded, humane attitude to take. Let the state pay for it, and if we have not got medical men in our state who are capable of giving the best service, let us get them elsewhere. I think we have got men in this state who are capable of caring for these cases, but under the present system of management (I don't know who is responsible for it) we are not getting the results we ought to get.

DR. W. SCOTT FARMER, Nashville: Our institutions can be summed up in one word, "hospital." One of the troubles I had, and other superintendents have had the same thing, when I first took charge of the Central Hospital for the Insane, was that we had the idiots, the imbeciles, the epileptics, the criminally insane all mixed together. By a campaign of education we have got our state to agree to a separate home for the feeble-minded. They should not be in the State Hospitals. If we can convince the public of the need of having a separate institution for epileptics and take them out of our institutions, and then if we can get the state to see the needs of the criminally insane, and let us only have the sick insane purely, and can get these people to come to the hospital early, I think our statistics will compare favorably with those in other lines of work.

In answer to Dr. Sheddan's argument, that there is a hardship being worked on some people, and he does not blame the superintendents, I want to explain this to him in this way: All patients received in our hospital have to be committed legally. All our superintendents are clamoring for a volunteer commitment. Any man, or woman, who is mentally sick, should have the right to go and enter a state hospital, just the same as any other hospital, but as yet we have not got to that. We are receiving papers of our patients from various counties. We do not know them, but the county officials pass on them. If a county official says that they are able to pay their way, or they are objects of charity, that is the way we have to accept them. There is no law in our state but what may possibly hurt some one. We do not know anything about the financial condition of patients, only what these county authorities say. Each physician and the county judge sign an affadavit to the effect that this patient is or is not able to pay, and we accept these patients upon the papers we have before us.

## REPORT OF AN UNUSUAL CASE OF PAROXYSMAL TACHYCARDIA.

By Larkin Smith, M. D., Nashville.

A white, married woman, about 55, with three adult children and in comfortable circumstances. Chief complaint, repeated and often prolonged attacks of very rapid heart action. Began seven to eight years ago. First attacks not long, but gradually lengthened. States at present they may continue for weeks. They are accompanied by dyspnoea, but not by pain. They begin and end abruptly. When first seen by me, she had been forced to bed by her attending physisicia; her pulse rate about 160, regular, with slight dysponoea and cyanosis. The veins of the neck were decidedly enlarged and pulsating markedly.

There was but little, if any, enlargement of the heart, and no murmurs. Upon these data, I concluded she was the subject of a paroxysmal tachycardia.

The next morning her regular physician telephoned me that her pulse was normal in rate, but was very irregular.

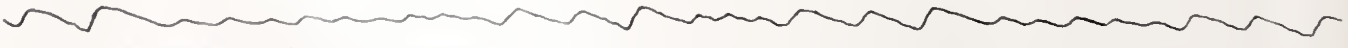
This struck me as unusual. Calling, and palpating her pulse, it gave very nearly the effect of auricular fibrillation—complete and absolute irregularity.

Upon taking an arterial pulse tracing, it showed a number of short periods of rhythmical tachycardia, interspersed by a few normal beats mixed with extra systoles.

There are two features of interest in this case—first, it is unusual to find a case of paroxysmal tachycardia that shows such variability in the same individual. We observe wide variations in duration of attacks in different persons.

I have had two of these cases under my care for several years that illustrate this point. In one, the attacks usually last from four to six hours. In the other, a man, their duration is only for a few seconds, and though his place of business is a scant hundred yards from my office, he has tried repeatedly, without success, to reach me before an attack terminated.

The other feature of interest is more practical. It is the differentiation in this particular case of a paroxysmal tachycardia from auricular fibrillation—two conditions in which both prognosis and treatment are entirely different and it is vital to draw the distinction.


Arterial tracing from case showing a number of short periods of paroxysmal tachycardia interspersed with a few regular beats and extra systoles.

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# EDITORIALS

## DELEGATES.

Only a few of our societies have elected delegates to represent them in the House of Delegates at the coming Memphis meeting. This important matter should be attended to at once and the names of the delegates should be sent to the Secretary of the Association.

For each delegate there must be elected an alternate, to serve in the absence of the delegate. The names of all alternate delegates should also be sent in to the central office by the county secretaries.

The business of the House of Delegates of the Tennessee State Medical Association is important business. The representatives of the component county societies who are to pass on the matters to be considered should be chosen carefully—with a view to having the best brains of our membership to give thought to and to act upon whatever may come up for settlement.

## SPEAKER OF THE HOUSE OF DELEGATES.

At the last annual meeting in Chattanooga, after the proper legal amendments had been made, a Speaker of the House of Delegates was chosen to preside over the deliberations of our business body. Dr. A. Frank Richards, of Sparta, has the honor of having been selected as the first Speaker of the House of Delegates of the Tennessee State Medical Association, and will direct the work of that body at the Memphis meeting.

Dr. Richards is an experienced man in medical society affairs, and one who knows what the ideals are and how to fight for them. He has for years been secretary of his county society, has served as Councilor of the State Society, as President of his sectional organization, and as President of the Tennessee State Medical Association. He has repeatedly served as a delegate in the state society, and was for two years a delegate to the American Medical Association. We may expect to have business dispatched promptly, and all the lines of action kept clear under his direction.

## THE COMING ANNUAL MEETING.

The eighty-ninth annual meeting of the Tennessee State Medical Association should attract a great big crowd of Tennessee doctors to Memphis on April 11-12-13. Just the fact that it is to be the eighty-ninth successive meeting should bring out a big attendance, but there are numerous other more material reasons for having a large number present. Important reports will be made at Memphis, which will deserve careful consideration and final action that will be truly representative. We hope to have a good program, both as to clinics and as to scientific papers. The guests of the occasion are men who are widely known as very able physicians and specialists. New officers of the Association must be chosen. Memphis is a fine city to visit, and all who go to the meeting will be able to secure comfortable accommodations. The Association needs and deserves to have a large attendance this year. And, finally, the Secretary of the Association and the Editor of the Journal, who has been serving for a long long time, is going to tell those present something that most folks, no doubt, will be glad to hear.

The world will keep on turning until you can get back home. Go to Memphis—April 11-12-13!

## A SUGGESTION TO THE PROFESSION.

The following letter from Dr. J. P. Gerstley, of Chicago, recently appeared in the Journal of the American Medical Association. It offers something for the doctors of this land to think about more carefully and soberly than most of them have been thinking.

## The Adaptation of Infant Welfare To Private Practice

To the Editor:

The present era is witnessing an intensification of the idea of preventive medicine. Always greater in idealism than their contemporaries, physicians have felt their responsibility—not only that personal responsibility to fellow members felt by the craftsmen or the merchant to his particular association, but also a sense of responsibility and obligation to the community at large. Every medical discovery of possible practical value to humanity made by a physician has been made available to both the public and the medical profession gratis. The technic of this transfer has usually been by means of the "board of health." When the typhoid bacillus was sufficiently correlated to typhoid fever, the state established methods of milk, food and water inspection. A study of the tubercle bacillus has led to the establishment of municipal and state dispensaries and sanatoriums. Elaboration of our knowledge of contagious disease leads to constantly changing laws of quarantine. The dependence of pellagra and beriberi on food developed a new dietary code, and more recently the practicability of toxin-antitoxin mixture has led to its adoption by various municipal agencies. It would seem that as soon as the medical profession has so perfected a study as to make feasible its application on a broad scale, this function has been assumed by the state.

Undoubtedly, with every increase in the power of the public health department, a number of physicians have sensed danger to their profession, and, from loyalty to their own, have voiced protest. But in every case a group more altruistic, feeling deeper responsibility to the entire community, has advocated the change. In every instance this has come.

During these developments, however, the medical profession has never really suffered. It has protected its own interests by offering much the same service as that of the state. Owing to political conditions, a mass of the public prefers the service of a private physician even in preventive work, while those less fortunate financially are cared for at public expense.

Until recently, preventive medicine has been mainly concerned with the control of infectious disease. Such problems as infant feeding were too complex and too unsettled to be feasible for organized effort; but the individual study and enthusiasm of the last ten years has revolutionized and decidedly simplified the principles of infant feeding. Diarrheas of obscure and baffling origin, ascribed to every possible hypothetic cause, are now placed as simple dietary failures, too much carbohydrates, too little carbohydrate, lack of vitamin, or improper balance between food constituents. Infant feeding becomes relatively simple. With the newer technic, privately endowed infant welfare societies working in a spirit of preventive medicine have shown it practicable to direct the diets of large groups of infants, to keep them happy, healthy and thriving, and to decrease infant mortality by incredible figures. No sooner had this been demonstrated than the state grasped the idea and municipal welfare stations entered the field. Private enterprise is now developing the field of cardiac clinics, and schools are established especially for these patients.

This idea is spreading to the care of adults, and in a rather vague, indefinite way come rumors of health centers and other propaganda for preserving the health of the adult and his ability to work. The state is yet far from adopting practical measures along these lines. It would seem reasonable to assume that the idea must first be proved practicable by groups of physicians in private practice. But already another struggle is on. Opponents loyal to the medical profession denounce such tendencies. Their ideals of citizenship rest temporarily on the shelf. Proponents with broader points of view favor another great medical sacrifice so as to bring about intervention for those unfortunates who must pay for efficient service by starvation, and who pay for inefficient skill by suffering and neglect.

Though these ideas have not yet crystallized, the germ is here. If in time to come the public makes such a demand, this demand will be granted. Physicians as a profession or by individual effort may stem the tide, but a democracy will always heed the call of 700 to 1.

Is not the time ripe for the physician to look to the future? Must these ideas be thrust on the profession, or will it as in the past be a leader and educator of the layman? Why not give private patients the same benefits as will be offered by that state? Why not offer one's skill and experience not only for the cure of disease, but also for its prevention? The public is not blind to such possibilities. The farmer gladly employs means for preserving the health of his cattle and hogs. Corporations employ high salaried attorneys to prevent lawsuits. Every adult goes periodically to the dentist. Why not offer **preventive** medical service to our patients?

Of all specialties, pediatrics has seized the idea most vigorously. Much of the activity of the modern pediatrician is devoted to keeping his little patient well. In introducing such ideas the physician finds enthusiastic cooperation. The mother is delighted in an interest which attempts to preserve her child's health. She gladly consents to routine examinations that aim at prophylaxis. She is well satisfied to understand that orange juice, cod liver oil, phosphorus, calcium and iron are given at various times with a view of preventing disturbances rather than of curing them. Indeed, this idea, first conceived with regard to the nutritional disturbances, meets with such a welcome that by one's own practice is almost forced into other fields. Smallpox vaccination, of course, is not new. The recent health department propaganda has resulted in a bombardment of questions as to the advisability of giving toxin-antitoxin mixture. Typhoid vaccination is well established. Mothers literally insist on prophylactic injections of pertussis vaccine in spite of the warning as to its doubtful efficacy.

Granted examinations at stated intervals, routine supervision of the diet, and prophylactic procedures as regards infectious disease, a children's practice becomes a source of great satisfaction and pleasure. Such work is the finest feature of the day's duties.

Is not the time ripe for the general practitioner to offer in an organized way some such service to adults? Such a slight adaptation to the demands of the present would mean much to the general public and to the physician as well. One might truly feel that he was entering a new era. "State medicine" might grow in influence and no cloud darken the medical horizon. The altruistic activities of the physician would be compatible with professional livelihood. He himself would prosper in attempting to actualize his abstract dreams. Medical ideas harmonizing with medical prosperity would thrive in an atmosphere of health and happiness.

Jesse R. Gerstley, M. D.,
Chicago, Ill.

## WEST TENNESSEE DOCTORS TAKE NOTICE.

Physicians sending specimens to the West Tennessee Branch Laboratory of the State Board of Health will please address them as follows:

State Board of Health,
West Tennessee Laboratory,
Pathological Institute,
Memphis, Tenn.

Packages should not be addressed to Dr. Wm. Krauss, because they may be delivered, as many have already been delivered, to his old address, and not reach the laboratory at all. Dr. Krauss is directing the work of the West Tennessee Branch Laboratory, and does not maintain his old office.

The doctors of West Tennessee are not using the laboratory which the State Board of Health has established for the section of the state, as it was expected they would. Of course, the service will not be continued unless there is a real demand.

Specimens sent to the laboratory should be in regulation containers, since otherwise they may not be transmitted through the mails.

## ONE HUNDRED PER CENT.

We have heard of an intelligent man who lived in a town with two resident physicians, but who invariably went to a nearby town to secure medical attention for himself and his family. Someone asked him why he did not call on his home town doctors—and here's what he said:

"Dr. A. says that Dr. B. doesn't know anything, that he's just out of school and hospital, and that he's an upstart.

"Dr. B. says that Dr. A. doesn't know anything; that he's rusty and uneducated and an old fogy.

"Now when one hundred per cent of the doctors in my town tell me that the local medical profession is incompetent, I believe 'em and go somewhere else for service."

Think it over!

And it's that way in some big towns, too.

## SECTION ON PEDIATRICS.

At the last annual meeting of the Tennessee State Medical Association, a Section on Pediatrics was created. This new section will not be separate and distinct in the way of having its own exclusive scientific program, but will contribute as a section to the general program. We may all be assured that the contribution thus made will be most helpful. The truth is that most of us need to have some special instruction in pediatrics.

Dr. Isaac Abt, one of the foremost American pediatrists, will be the guest of the newly formed section at the Memphis meeting, and will appear on the general program on Wednesday, April 12.

## SECTION ON OPHTHALMOLOGY AND OTOLARYNGOLOGY.

Dr. J. B. Blue, Secretary of the Section on Ophthalmology and Otilaryngology, has written the Journal that the program of that section for the Memphis meeting is about ready. The eye, ear, nose and throat clinics at Memphis will be held on Monday, April 10. The scientific program of this section will be presented on Tuesday, April 11, thus leaving its members free to attend the general sessions. Dr. E. C. Ellett, Memphis, and Dr. Hilliard Wood, Nashville, will represent this section on the general program.

As invited guests the O. O. Section will have Dr. Marcus Feingold, a distinguished ophthalmologist of New Orleans, and Dr. George E. Shambaugh, an equally distinguished otologist of Chicago.

## THE PUBLIC HEALTH INSTITUTE AT MEMPHIS.

The Public Health Institute at Memphis, January 23-28, was the first ever held in this state. It was well attended by the public health workers of the state, but the doctors who were there were few indeed—not more than twenty-five or thirty during the entire week. Well, those who took the trouble to go and hear Dr. Stokes on the general subject of "Syphilis," and Dr. Geraghty on "Specific and Non-Specific Urethritis," and Dr. Goldberger on "The Principles of Nutrition," and Dr. Ravenel on "Tuberculosis," and others of the lectures on the program were richly repaid. Those who might easily have attended, but who did not, missed some mighty good things. Dr. Stoke's six lectures on syphilis were brilliant. There is not a doctor in Tennessee who would not be better off for having heard those six lectures, but there were mighty few who did hear them. Oh, well, what's the use?

Dr. Frank D. Smythe, as President of the Memphis and Shelby County Medical Society, and Dr. Wm. Britt Burns, as President of the Tennessee State Medical Association, presided at some of the sessions of the institute and were constant attendants. The doctors of Covington were nearly all present at two or more of the sessions, some of them at nearly all, and there were a few other West Tennessee doctors on hand during the week.

Most of the Public Health Nurses of the state were present at some time during the week. There was a fair attendance of non-professional persons who are interested in public health.

The program was put through in schedule time—there was no lost motion—and it presented some of the very best deliverances on scientific medical subjects that were ever heard in Tennessee. There were, also, some things that were rather apart from strictly scientific medicine, but, even if we do not subscribe to some things that were said, we think that they were representative of certain views that doctors and sanitarians should know about.

But the doctors were not there. It may be that they will go some next time.

## CREDIT TO COLLIERS'.

In the January Journal there appeared an editorial "Editorials in Colliers' Weekly," after which were two editorials from Colliers. Our printers did things wrong and made three editorials out of what was intended for one, since our intention was to embody the two from Colliers' in ours. It therefore has happened that the editorial from Colliers' headed "Hands Off the Doctors" appeared in the Journal without credit having been given.

## THE ST. LOUIS MEETING OF THE A. M. A.

The annual meeting of the American Medical Association will be at St. Louis, May 22-26, 1922. Since St. Louis is within easy reach of nearly all of Tennessee, it is probable that our state will be well represented at the coming meeting. As will be seen from a reading of the letter from Dr. Hopkins, which is printed below, reservations are being made every day. Those of our readers who intend to go to St. Louis should make their hotel reservations as early as possible. For their convenience, we are printing here a list of St. Louis hotels and the rates and locations, which same Dr. Hopkins enclosed with his letter.

An unusually large attendance at St. Louis may be looked for because of the central location.

"The May meeting of the American Medical Association at St. Louis promises well toward being the largest in attendance of any of the Association's sessions. Since the publication of the hotels in the Journal of the Association in December, inquiries and reservations are being made daily. The hotels and the Conventions Bureau are aiding the Committee in a most satisfactory and helpful way to see that the fellows are comfortably housed and accommodated. The A. M. A. meetings tax all cities entertaining them to the limit of hotel capacity. Whenever possible a good fellow should double up so that no one is left without comfortable lodging.

Reservations should be made by communicating direct with the hotels. If satisfactory arrangements cannot be made in this way, write to Dr. Louis H. Behrens, Chairman Committee on Hotels, 3525 Pine St., St. Louis, Mo."

Very truly yours,

Thos. A. Hopkins, M. D.,
Chm. Committee on Printing.

ST. LOUIS' LEADING HOTELS (ALL EUROPEAN PLAN), THEIR LOCATION AND RATES

| Hotel, with Number of Rooms | Street Address | Without Bath | | With Bath | |
|---|---|---|---|---|---|
| | | Single | Double | Single | Double |
| American, 275 | 7th & Marget Sts. | ........ | ........ | $2.50-3.00 | $4.00-6.00 |
| *Diseases of Children* | | | | | |
| American Annex, 225 | 6th & Market Sts. | ........ | ........ | 2.00-3.00 | 3.00-6.00 |
| *Pathology and Physiology*<br>*Pharmacology and Therapeutics* | | | | | |
| Beers, 114 | Grand & Olive Sts. | $1.50 | $2.50 | 2.00-2.50 | 3.00-3.50 |
| Brevort, 50 | 4th & Pine Sts. | ........ | ........ | 2.00 | 3.00 |
| Cabanne, 43 | 5545 Cabanne St. | ........ | ........ | 12.00-37.50* | |
| Claridge, 350 | 18th & Locust Sts. | ........ | ........ | 2.50-4.00 | 4.00-10.00 |
| *Obstetrics, Gynecology and Abdominal Surgery* | | | | | |
| Hamilton, 160 | Hamilton & Maple Sts. | ........ | ........ | 2.00-2.50 | 3.50-4.00 |
| Jefferson, 400 | 12th & Locust Sts. | 2.50-3.00 | 4.00 | 3.00-8.00 | 6.00-10.00 |
| *Surgery, General Abdominal*<br>*Orthopedic Surgery* | | | | | |
| Laclede Hotel, 265 | 6th & Chestnut Sts. | 1.50-2.00 | 2.50-3.00 | 2.50-3.00 | 3.50-4.00 |
| Majestic, 200 | 11th & Pine Sts. | ........ | ........ | 2.50-3.00 | 3.50-4.00 |
| *Dermatology and Syphilology*<br>*Nervous and Mental Diseases* | | | | | |
| Marion Roe, 200 | Broadway & Pine Sts. | ........ | ........ | 1.50-2.00 | 3.00-4.00 |
| Marquette, 400 | 18th & Washington Sts | 2.00-2.50 | 3.00-3.50 | 3.00-3.50 | 4.00-6.00 |
| *Laryngology, Otology and Rhinology* | | | | | |
| Maryland, 240 | 9th & Pine Sts. | 2.00 | 3.00 | 2.00-3.50 | 3.00-5.00 |
| *Gastro-Enterology and Proctology*<br>*Urology* | | | | | |

| | | | | | |
|---|---|---|---|---|---|
| Planters, 400 | 4th & Pine Sts. | 2.00-2.50 | 3.00-3.50 | 2.50-5.00 | 4.00-8.00 |
| *Ophthalmology* | | | | | |
| Plaza, 209 | 3300 Olive St. | ---------- | ---------- | 2.00-2.50 | 3.50-5.00 |
| Roselle, 100 | 4137 Lindell Blvd. | ---------- | ---------- | 1.5-2.50 | 2.50-3.50 |
| St. Francis, 120 | 6th & Chestnut Sts. | 1.50-2.00 | 2.50-3.00 | 3.00-4.00 | 4.00-5.00 |
| Statler, 650 | 9th & Washington Sts. | ---------- | ---------- | 3.00-7.00 | 5.50-9.50 |
| *Practice of Medicne* | | | | | |
| Stratford, 100 | 8th & Pine Sts. | 1.50 | 2.50 | 2.50 | 3.50 |
| Terminal, 100 | Union Station | 1.50-2.00 | 3.00 | 3.00-3.50 | 5.00 |
| Warwick, 200 | 15th & Locust Sts. | ---------- | ---------- | 2.00-4.00 | 4.00-6.00 |
| *Stomatology* | | | | | |
| *Preventive Medicine and Public Health* | | | | | |
| Westgate, 125 | Kingshighway & Delmar Sts. | 2.00 | 2.50 | 3.00 | 3.50 |

*Weekly Rates only.

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## DR. E. A. DAVIDSON.

In the recent death of Dr. Davidson, the medical fraternity has lost one of its shining lights, and Bedford County one of its most worthy citizens, the community one of its most honored neighbors, and the church of Christ a most faithful and consecrated member.

Orphaned at the age of ten, Dr. Davidson was taken into the home of the late Dr. I. S. Davidson of Richmond, and reared as a member of his own family. At the age of sixteen he volunteered into the Confederate Army, and was taken captive at Fort Donelson and imprisoned, with his regiment, for seven months. By exchange he was discharged from service, being under military age. After remaining at home for several months, he re-enlisted in Starnes' Fourth Tennessee Calvary, Capt. Dysart's Company, and served with credit until the close of the war, surrendering in North Carolina in May 1865.

After the war he went to school at Lewisburg, and read medicine under his uncle, Dr. I. S. Davidson, and practiced with him until his uncle's death. He then continued until his own death, which occurred October 19, 1921.

In early manhood he obeyed the gospel and became a member of the Church of Christ at Richmond, and was faithful and true to his religious vows, as he was in all other relations in life.

He married Miss Lizzie Marks, who, with two children, a son and a daughter, survives him.

The above is a sketch and portraiture of the life and character of Dr. E. A. Davidson.

We, the Medical Society of Bedford County, deplore his taking off, and desire to express our deep regret at his death, and our unbounded respect and love for him as a man and physician. He was capable, untiring, consecrated to noble purposes, honest, sympathetic, and his ethical ideals in his profession were of the very highest. In this latter respect, he should serve as a model for many of his younger brothers in the same field of service. He practiced the healing art with a devotion that was commendable, and a love that was beautiful. His impress for good was left upon thousands, both as a Christian doctor and as a man spending and being spent in the service of humanity.

Resolved, That we tender our deepest sympathy to his wife and children in this sad hour of bereavement, and that copies of this memorial be sent to them, and also copies be preserved for our own Society and for the Middle Tennessee Medical Society, of which the deceased was so long a worthy and faithful member.

G. W. MOODY,
T. J. COBLE.
T. R. RAY.
Committee.

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## DR. L. D. J. ENSOR.

After a long and eventful career as a practitioner of medicine covering nearly a half century, Dr. L. D. J. Ensor died at his home in Cookeville, Tenn., November 16, 1921. He was kind, genial and manly, and the Putnam

County Medical Society is called on to mourn the loss of one of its most faithful and energetic members.

In the departure of Dr. Ensor we are once more reminded of the vanity of our desires, and made to realize what our books cannot teach, the mysteries of death. Be it said that no death in recent years has caused more universal sorrow in Putnam County, of both the laity and medical profession, than that of our recent departed brother.

He made a success in his profession by his indefatigable study, untiring activity and a natural adaptibility for his vocation. Each member of the Putnam County Medical Society present at the December meeting uttered eloquent tributes to his memory.

The resolutions arranged by the Committee are as follows:

Whereas, the Great Physician has again laid his hands heavily upon us, and removed from our midst our beloved brother, Dr. L. D. J. Ensor;

Therefore, Be it Resolved, That we have sustained an irreparable loss in the death of him who was beloved, honored and respected by all who knew him. And that in his death the Putnam County Medical Society has lost a true friend and able member, the community a valuable citizen, and the world a Christian gentleman.

Resolved, That we tender to his bereaved family our profound sympathy in their sorrow, and the assurance of our belief that he is safe in the better land.

Resolved further, That four copies of these resolutions be prepared, one to be sent to the family of our deceased brother, one to our county paper, one to the Tennessee State Medical Journal, and one spread upon the minutes of the Putnam County Medical Society.

SAMUEL DENTON.
Z. L. SHIPLEY.
L. M. FREEMAN.
Committee.

## CORRESPONDENCE

### WORKMEN'S COMPENSATION.

Dear Dr. West:
Nashville, Tenn.

Just a word in regard to the matter mentioned by our President Dr. Wm. Britt Burns, in January Journal concerning the question of compensation for doctors, governed by the Workmen's Compensation Act of the State of Tennessee. I heartily endorse the sentiments expressed by him and the stand taken in this matter. It has been my experience to go through exactly what he describes in regard to this matter, as I and the Hospital with which I am associated have $1200 in just such insurance accounts at the present time. The expression "mad as hell" just about describes one's feelings when he has faithfully attended a compound comminuted fracture over a period of months and wakes up to the fact that the law limits the medical and surgical expenses, including dressings, etc., to $100. In these cases you can receive only the same amount as in a minor injury.

I think the matter should be aired in the state society, and the doctors of every county get behind their representatives and see that this part of the law is changed, so as to render justice to all parties concerned. I have asked the county societies composing my district to pass resolutions condemning that part of the law, and some of them have already passed upon the same. The representative from this county is in hearty accord with the doctors in fighting this condition.

You may publish this letter in the Journal if you wish.

With kindest personal regards, and best wishes for a successful meeting in Memphis,

I remain, very truly your,

E. H. BAIRD, M. D.
Councillor Ninth District.

Dyersburg, Feb. 9, 1922.

## OUR COUNTY SOCIETIES

### PUTNAM COUNTY.

Dr. Lex Dyer, Secretary of the Putnam County Medical Society, has reported the names of nine members for 1922 enrollment. All but one paid medical defense assessments.

### DAVIDSON COUNTY.

More than one hundred members of the Nashville and Davidson County Medical Society were reported for the current year's enrollment by the Secretary, Dr. J. O. Manier, before this Journal went to press. This society will go over the 200 mark this year.

### LAKE COUNTY.

Dr. J. D. Alexander, Secretary of the Lake County Medical Society, made his first report for 1922 on January 10, and sent in nine names. This is just a little under one hundred per cent for Lake.

### DYER COUNTY.

At the regular meeting of the Dyer County Medical Society, officers for 1922 were elected as follows: President, Dr. W. P. Watson; Vice President, Dr. B. G. Marr; Secretary-Treasurer, Dr. R. L. Motley.

On the evening of January 19, the physicians of Dyersburg entertained the society at a dinner, after which the regular meeting was held. The program consisted of a paper by Dr. J. D. Brewer on "Melano-sarcoma of the Choroid," one by Dr. C. A. Turner on "Pellagra," and a third by Dr. R. L. Motley on "The Diagnosis of Heart Diseases."

Sixteen members of this society have been reported for 1922 enrollment, with just one half taking advantage of medical defense.

### WILLIAMSON COUNTY.

Six members of the Williamson County Medical Society have been enrolled for 1922, all of whom paid medical defense assessments. Dr. K. S. Howlett, Franklin, is again Secretary of this society.

### HICKMAN COUNTY.

The Hickman County Medical Society met at Centerville on January 3, and elected officers for the year. Dr. W. K. Edwards was elected President, Dr. J. W. Thompson, Vice President, and Dr. J. S. Beasley, Secretary. Seven members, all of whom paid medical defense assessments, have been enrolled to date.

### WASHINGTON COUNTY.

The Washington County Medical Society, through its secretary, Dr. E. T. West of Johnson City, has reported 29 members for 1922, all paying medical defense.

### WEAKLEY COUNTY.

The 1922 officers of the Weakley County Medical Society are: President, Dr. H. B. Stephens, Dresden; Vice President, Dr. J. B. Bond, Martin; Secretary-Treasurer, Dr. B. B. Parrish, Dresden. In his first report, Dr. Parrish sent in the names of eight members, five of whom paid medical defense assessments.

### OBION COUNTY.

Dr. Ira Park, Secretary of the Obion County Medical Society, has reported eight members for 1922 enrollment, five of whom have paid medical defense assessments.

### BEDFORD COUNTY.

Dr. B. F. Avery, Secretary of the Bedford County Medical Society, reports that the last year was a very good year for that organization. Ten scientific papers were presented at the regular meetings during the year. At the December meeting, officers were chosen to serve this year as follows: President, Dr. T. J. Coble; Vice President, Dr. W. C. Kirkland; Secretary-Treasurer, Dr. W. H. Avery; Censors, Drs. S. S. Moody, W. T. Robinson, and M. L. Connell.

## HAYWOOD COUNTY.

Dr. J. L. Edwards, Secretary of the Haywood County Medical Society, has sent in the names of nine members for 1922 enrollment. Dr. E. R. Mulherin is President, and Dr. T. C. Chapman Vice President of this county society.

## RUTHERFORD COUNTY.

Rutherford County Medical Society met in regular session February 1st, in the basement of the Central Christian Church. Sixteen physicians and the Red Cross Nurse were present. Among the visiting physicians present were Dr. Olin West and Dr. Bradley of the Children's Bureau of Washington, D. C. Dr. Bradley will be in charge of the Health Special Truck which will make a tour of Rutherford and Cannon Counties. She has a most pleasing personality and made a highly interesting and instructive talk. Dr. West made a good talk and to the point as he always does. Dr. West has a warm place in the hearts of all the physicians, not only of Rutherford County, but of the entire state. A number of enthusiastic speeches were made by local physicians, and all pledged themselves to the support of the campaign.

Rutherford County Medical Society did not hold regular meetings during the World War on account of so many of the doctors being in the Service, but during the past year has re-organized, and is now thoroughly alive and active. Regular monthly meetings are held in the basement of the handsome Central Christian Church, and at each meeting the capable ladies of the church serve the society with a delightful lunch. The splendid fellowship of these meetings is doing much to further cooperation among the physicians in their work. Regular attendance is urged from each and every member, and visiting doctors are cordially welcomed at these meetings.

J. A. SCOTT.
Murfreesboro, Tenn. Secretary.

## HAMBLEN COUNTY.

Dr. C. T. Carroll, Secretary of the Hamblen County Medical Society, has sent in the names of sixteen 1922 members, with a check to cover annual dues and medical defense assessments for the whole number. That's the way to do it.

At the December meeting of this society, Dr. P. L. Brock was elected President; Dr. P. L. Henderson, Vice President; Dr. C. T. Carroll, Secretary-Treasurer. Dr. J. W. Pierce, the retiring president, was selected delegate, with Dr. F. F. Painter as alternate.

Dr. J. W. Pierce presented to this society, upon retiring from the presidency, a remarkably interesting paper reviewing to some extent his service of more than fifty years as a physician.

## SUMNER COUNTY.

The Sumner County Medical Society met in Gallatin Wednesday, January 4, at which time the following officers were elected for the ensuing year: Dr. Humphrey Bate of Castalian Springs, President; Dr. L. Miller Woodson, Gallatin, Vice President; and Dr. John R. Parker, Secretary and Treasurer.

Dr. John R. Parker was also elected delegate to the State Convention at Memphis, and Dr. W. T. Allen, alternate.

Dr. R. A. Barr of Nashville was present and read a most interesting paper on "Repair of the Perineum," which was thoroughly enjoyed and discussed by every member present.

# NOTES AND COMMENT

The name of the Doctors' Building, which houses so many of Nashville's physicians, has been changed to the Lambuth Building by its new owners, the Board of Missions of the Southern Methodist Church. The building has been renamed in honor of Bishop Walter Lambuth, who died in Japan a few months ago, and who was a doctor as well as a preacher and missionary before he was a bishop.

At a recent meeting of the Board of Directors of the Dyersburg General Hospital, Dr. C. A. Turner, and Dr. John Cook were elected managers of the hospital. Dr. W. P. Watson has served as manager heretofore.

Dr. Franklin B. Bogart has taken charge of the Erlanger Hospital x-ray and clinical laboratories at Chattanooga.

Dr. Bruce P. Poole, after several months spent in study in Europe, has returned to Nashville and has re-opened his office in the Lambuth Building.

County secretaries will confer a great favor if they will urge the payment of dues upon their members, and get all names in for enrollment as soon as possible to the state secretary.

The eighty-ninth annual meeting of the Tennessee State Medical Association at Memphis on April 11-12-13 should be attended by not less than six hundred Tennessee doctors. Be one of 'em.

## OFFICERS AND COMMITTEES.

Officers and committees of the Tennessee State Medical Association for 1921-22 are as follows:

President, Dr. William Britt Burns, Porter Building, Memphis.

Vice-President for West Tennessee, Dr. A. B. Dancy, Jackson.

Vice-President for Middle Tennessee, Dr. L. W. Edwards, Nashville.

Vice-President for East Tennessee, Dr. G. P. Zirkle, Kingston.

Speaker of House of Delegates, Dr. A. F. Richards, Sparta.

Treasurer, Dr. J. F. Gallagher, Jackson Bldg., Nashville.

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# MISCELLANEOUS

## THE TREATMENT OF CARBON MONOXIDE POISONING.

By R. R. Sayers, Chief Surgeon, U. S. Bureau of Mines, P. A. Surgeon, U. S. Public Health Service; and H. R. O'Brien, Car Surgeon, U. S. Bureau of Mines, Assistant Surgeon, (R), U. S. Public Health Service.

Carbon monoxide poisoning is one of the most widely distributed and most frequent causes of industrial accidents. Carbon monoxide gas is a product of incomplete combustion, and since it is without color, odor or taste, its presence is frequently unsuspected in many places where it exists. It is an ever present danger about blast and coke furnaces, smelters and foundries. It may be found in buildings having a leaky furnace or chimney, and in buildings where a gas stove is used without a proper flue connection, such as is often found in tenements, tailor shops, and boarding houses. Hospitals receive annually a great number of victims of poisoning, either by accident or in an attempt at suicide, from artificial illuminating gas. People may become affected by leaks wherever water gas is formed or used. The exhaust gases from gasoline motors under average running conditions usually contain five to seven per cent carbon monoxide, and sometimes as much as thirteen per cent; deaths from running an automobile engine in a closed garage are not infrequent. A similar danger may arise in operating gasoline engines in launches without sufficient ventilation. The gas is formed also in stoker rooms, in gun turrets on battleships, in petroleum refineries, and by the Lablane soda process in cement and brick plants. In underground mines carbon monoxide may appear as the result of shot firing, mine explosions, or mine fires, and in tunnels where automobiles, coal or oil-burning locomotives are operated.

In spite of the common occurrence of carbon monoxide poison, there appears to be no uniformly recognized treatment for a person overcome by carbon monoxide. In the rescue work of the United States Bureau of Mines, however, a method has been developed which has been supported by laboratory investigation, and has proved successful in practical experience, over a period of years. As outlined in this article, the method is useful in the hands of first-aid men as well as physicians.

Carbon monoxide exerts its extremely dangerous action on the body by displacing oxygen from its combination with hemoglobin. Hemoglobin is the coloring matter of the blood which normally absorbs oxygen from the air in the lungs and delivers the oxygen to the different tissues of the body, which need it to do their work. The affinity of carbon monoxide for hemoglobin is about 300 times that of oxygen. Because of this, even when only a small amount of the poisonous gas is present in the air breathed into the lungs, much of the hemoglobin is locked up in combination with carbon monoxide and so cannot keep up its usual work of carrying oxygen to the tissues. These due to lack of oxygen, cannot do their work properly. If they are deprived of oxygen long enough, degeneration sets in, and the damage to the tissues sometimes cannot be repaired, even though the patient may survive. It is possible that carbon monoxide has a specific poisonous action on some tissues of the body, especially those of the nervous system, but there is little evidence in favor of this and much against it. Haggard and Hendersn found that there was no change in the rate growth of chick brain tissue, even by exposure to an atmosphere containing more than 70 per cent carbon monoxide, and it has been shown many times that animals without red blood (hemoglobin) can live in atmospheres containing high concentrations without apparent harmful effects. This was recently demonstrated at the bureau's Pittsburgh experiment station, when some roaches were kept for several days in an atmosphere having more than 60 per cent carbon monoxide and 20 per cent oxygen, without lessening their activity.

The victim of acute carbon monoxide poisoning usually experiences the following symptoms: Yawning, sleepiness, tiredness, a feeling that the skin is tightly stretched across the forehead, a frontal headache at first dull and intermittent, and later more severe and continuous; later this headache is replaced or masked by a typical one at the base and back of the skull, which causes the sufferer to hold his head as far back as possibe in an effort to obtain reief; dizziness, nausea (feeling of sickness) and lassitude also occur. The pulse is at first normal, but later becomes full and rapid, the skin is flushed, the respiration becomes more rapid with exposure to the gas and later irregular. If the exposure is sufficiently long or the concentration sufficiently great, confusion and unconsciousness develop. As the victim recovers, he remains weak for some time; this is especially true of leg muscles. Headache, sometimes very severe, confusion of mind ,and partial loss of memory accompany recovery, but these pass off in time. The nausea may be sufficient to produce vomiting. All the symptoms are accentuated by exercise, eating and stimulants. When a man is overcome by large concentrations of the gas, the symptoms follow each other rapidly, and he may quickly fall unconscious. The rate at which a man is overcome and the sequence in which the symptoms appear depend on several factors: the concentration of the gas, the extent to which he is exerting himself, the state of his health and individual predisposition, and the temperature, humidity and air movement to which he is exposed. Exercise, high temperature, and great humidity, with no air movement, tend to increase respiration and heart rate, and consequently, result in more rapid absorption of carbon monoxide.

In a chronic form, carbon monoxide poisoning produces a tired feeling, headache, nausea, palpitation of the heart, sleeplessness, and sometimes mental dullness. Some people develop a "tolerance" for carbon monoxide, and may, after a while, be able to "stand" more of the gas than when first exposed to it. In the treatment of the chronic form of poisoning the most important factor is the avoiding of further exposure to carbon monoxide and a thorough rest. Though there are probably many more cases of the chronic form than are usually recognized, it is in the treatment of the acute form that interest is generally centered.

The first and most important thing in caring for a case of acute carbon monoxide poisoning is to get the poison out of the blood. Every moment that it shuts the oxygen out of the hemoglobin adds to the chances for failure of respiration and failure of the heart. Every minute that the tissues are supplied with only a part of the oxygen they need increases the danger of their degeneration and permanent damage. Both to save life itself and to prevent ill health in the future, it is of vital importance to eliminate carbon monoxide from the blood as rapidly as possible.

Oxygen will take the place of carbon monoxide in the blood whenever the proportion of oxygen in the lungs is overwhelmingly greater. The speed of the change depends on the relative amounts of the two gases in the lungs and on the depth and frequency of breathing. The first step is to get the victim away from the atmosphere of carbon monoxide which he is breathing; the next is to supply him with oxygen. This may be done by getting the patient into fresh air, but only one-fifth of air is oxygen. If a tank of pure oxygen is available, it is far better to use it, as the action is much faster and the after-effects, especially the headache, are much less severe and not so prolonged. The oxygen should, if possible, be given through an inhalator made similar to an anesthetic mask or Tissock Army face mask, which can be fastened over the patient's mouth, nose or entire face. If an inhalator is not at hand, a physician may give oxygen through a nasal catheter. In the absence of any of these accessories it can be sprayed directly from the tank about the patient's face. The administration of oxygen should be started as soon as he is removed from the carbon monoxide or before, if possible, and should be kept up for at least twenty minutes.

In view of the great importance of administering oxygen to these victims at the earliest possible moment, it is recommended that all ambulances be equipped with oxygen tanks. It may be that when the victim is found his breathing has stopped, or is very weak and irregular. In this case, after quickly removing the victim to good air, or while administering oxygen, one of the rescuers should begin at once artificial respiration, by the Schaefer method. This method is described below:

Place the person on his abdomen; remove from his mouth all foreign bodies, such as false teeth, tobacco and gum; see that the tongue is forward; turn his head to one side and rest it on his forearm, so that the mouth and nose will not come in contact with the ground, and extend the other arm forward. If the person is thin, prepare a pad of folded clothing, or blankets and place it under the lower part of his chest. Do not make this pad too thick. Do not wait to loosen the victim's clothing, but begin artificial respiration without delay. An assistant may remove all tight clothing from the victim's neck, chest, and waist, and place blankekts, hot-water bottles, safety lamps, or hot bricks, well wrapped in paper or cloth, about the person.

Kneel, straddling the person's thighs and facing his head; the palms of your hands are placed over the short ribs with your thumbs parallel with the spine about two inches apart and your fingers spread out as much as possible, the ends of the little finger reaching just below the last rib; with arms held straight, swing forward slowly so that the weight of your body is gradually brought to bear on the person. This operation, which should take about two seconds, must not be violent, lest the internal organs be injured. The lower part of the chest and also the abdomen are thus compressed and air is forced out of the lungs. Now, immediately swing back slowly to remove the pressure, but leave your hands in place. Through their elasticity the patient's chest walls expand and his lungs are thus supplied with fresh air. After two seconds swing forward again and repeat deliberately about 15 times a minute.

Continue, if necessary, for at least three hours without interruption, or until natural breathing has been restored or a physician has arrived. Even after natural breathing begins, carefully watch that it continues. If it stops, start artificial respiration again.

While the administration of oxygen is by far the most important factor in the treatment and cannot be over-emphasized, other things should be done to help the patient. He should be kept **quiet** and **lying flat,** to help his weakened heart. When he revives, he should **not** be **allowed** to **walk** about or in any way **exert** himself, for there is danger of heart failure. Heat from safety lamps, hot-water bottles, or warm bricks, rubbing the arms and legs, and keeping the patient well covered with blankets all help the circulation, and aid in tiding the body over a period of low vitality. The safety lamps, hot bricks, etc., should be well wrapped in cloth or paper as a precaution against burning the patient. Other stimulants such as hypodermics of caffein sodium benzoate or camphor in oil, should not be administered except by a doctor, after he has considered the possibility of over-stimulation and consequent collapse. The patient should be kept in bed for a day at least. Later he should be treated as a convalescent, being given plenty of time to rest and recuperate. Just how long this time should be depends on the severity of his poisoning and should be decided by his physician.

### Summary of Treatment.

1. Administer oxygen as **quickly as possible,** and in as pure a form as is obtainable, preferably from a cylinder of oxygen through an inhalator mask.
2. Remove from atmosphere containing carbon monoxide.
3. If breathing is feeble, at once start artificial respiration by the prone pressure method.
4. Keep the victim flat, quiet and warm.
5. Afterward give plenty of rest.

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### THE VALUE OF CASE REPORTS.

Rudolph Virchow once said that medical literature was sprinkled with case reports like fly specks. This and similar comments by by others have caused many to feel that the reporting of procedure, more indicative of a desire for publicity than the wish to contribute to medical knowledge. Many a derogatory attitude is anything but just. Many of the most important contributions to medical science are in the form of case reports. The only way we can learn about rare conditions is by the accumulation of data provided by each of the several instances of them. No one case gives the whole picture, but when we have accumulated enough separate views we can reconstruct a working model of the process. The success with which this can be done depends larkely on the accuracy and clearness of each of the several exposures. Some of the most interesting items in medical literature are case reports, and the well written report of an unusual case is always good reading. It requires much skill and judgement to select the essentials, and even more to discard the valueless items, to assay and interpret the existing literature. The preparation of a case for report is the best possible stimulus for accuracy and thoroughness in clinical and laboratory study. To be able to write a good case report is an art. Furthermore, since our knowlegde of all diseases that occur infrequently must be built up from such isolated observations, it is an obligation to medical science to report each and every such case. Were this always done, and well done, we should know much more concerning the frequency of rare diseases, their manifestations, course and treatment, and there would be less ocasion to puzzle about obscure pathogenic conditions.—Jour. A. M. A., Jan. 28, 1922.

## THERAPEUTIC EFFECT OF VENESECTION.

The changes following venesection are described by W. F. Petersen and S. A. Levinson, Chicago (Journal A. M. A., Jan. 28, 1922), and attention is called to a factor that seems of importance in the explanation of the therapeutic effect of venesection in lobar pneumonia. Years ago it was pointed out that recovery in lobar pneumonia must involve a dual detoxication: one a digestive phenomenon in which the lung exudate undergoes rapid lysis; the other an antibacterial mechanism usually coincident or actually dependent on the digestive acceleration.

Briefly, it may be stated that in the exudate of the consolidated lung a balance exists beween the amount of enzyme present (protease and ereptase from disintegrating polymorphonuclear leukocytes) and the antiferment of the plasma and tissue exudate. Early in the disease the leukocytes at the focus are living and have not shed their enzyme content. As they die, the enzymes diffuse into the surrounding mediums. If at any time the enzyme concentration overbalances the inhibition of the tissue fluids, active protelysis will commence and the crisis ensue. If in place of this increase in the enzyme concentration the amount of the antiferment can be diminished, the same augmentation of proteolysis will be brought about. This may take place with increasing acidity of the exudate, or actually diminishing the amount of plasma present in the exudate. Venesection may have a direct influence on this balance. The authors stress the fact that venesection at times induces striking therapeutic benefits, that a definite and logical basis extends for the therapeutic effects so achieved, and that its proper evaluation and application would in many instances aord ffclinical results when our more conservative methods fail.

## WHEN TO OPERATE AND WHEN TO USE RADIUM ON FIBROIDS OF THE UTERUS.

The principal field of radiotherapy George Gellmorn, St. Louis (Journal A. M. A., Jan. 28, 1922), says is: (1) in women of 40, or over, who have fibroids which do not extend above the umbilicus; the more uniform the enlargement of the uterus, the better is the case suited for this treatment; (2) women who are designated as poor surgical risks, that is, patients with marked secondary anemia; (3) those who are opposed to any form of surgical treatment. Radiotherapy is indicated in women above the age of 40 who have symptomless fibroids. Clinical cures are obtained in what probably constitutes more than 60 per cent of all case of fibroids. In the hands of the expert, this method is followed by no mortality. There is an insignificant morbidity after radiotherapy which is steadily growing less as the result of improved technic. The field of surgery in the treatment of fibroids is fairly well defined. All tumors extending above the umbilicus and, likewise, all large penduculated, subserous or submucous fibroids should be operated on, for in these three classes radiotherapy is likely to produce a necrosis of the tumors. Cervical fibroids are equally unsuited for radiotherapy, and should be removed surgically. The same is true of suppurating, necrotic or gangrenous tumors and those which are undergoing cystic or calcareous degeneration. While the frequency of such secondary changes in fibroids is not very great, they constitute an important group which must be reserved for surgical intervention. As a rule, women under 40 should be operated on rather than irritated. The younger the patient, the more clearly is the operation advisable.

## MYASTHENIA GRAVIS.

Of the fourteen cases cited by Charles L. Dana, New York (Journal A. M. A., Jan 28, 1922), four patients recovered; three are practically well; four are improved; one died of cancer; one died of disease, and one was not followed up. None of the patients died within a year, and the duration under observation, was: One year, five; two years, one; four years, one; five years, one; six years, one; seven years, one; twelve years, one; thirteen years, one; seventeen years, one. The difference in the course of myasthenia gravis, Dana believes, is due in part to the treatment given, which consisted of the administration of massive doses of strychnin as first proposed by Bridges. One patient took as high as one-fifth grain (13 mg.) of strychnin sulphate, twice a day. Another took one- seventh grain (9 mg.) of strychnin, twice a day, hypodermically, for forty-five days, then one-twelfth grain (5.4 mg.) twice a day. A third patient was given one-fourth grain (16 mg.) of strychnin, twice a day hypodermically.

## CHAULMOOGRA OIL IN TREATMENT OF TUBERCULOSIS LARYNGITIS.

This report by R. M. Lukens, Philadelphia (Journal A. M. A., Jan. 28, 1922), gives the results of sixty cases of tuberculus laryngitis treated over a period of eight months with chaulmoogra oil. The treatment was conducted more for the purpose of learning the effects on the pathogenic lesions of the larynx and the symptoms than on the tubercle bacillus itself. Chaulmoogra oil gave promising results from the beginning in cases in which there were dysphagia and pain in the throat. In the majority of cases it exerted an analgesic action on the larynx, which became more complete after repeated treatments. While improvement in the lesions was slower than was hoped for, yet cases treated with chaulmoogra oil have responded as rapidly as those treated with other drugs, and the treatment is much more easily borne. Preliminary cocainization has not been necessary, and there has been no pain or discomfort in the throat afterward, but rather a pleasing sensation of warmth in the throat and chest. In the cases in which intratracheal injections were made, sputum was rendered more fluid and was expelled with greater ease. Dryness of the throat, which frequently is present in tuberculus laryngitis, was improved but slightly in the majority of cases. At first the oil was applied by means of a cotton tipped applicator saturated with 10 per cent solution in liquid petrolatium directly to the laryngeal surface. Later the strength was increased rapidly up to the pure drug. Chaulmoogra oil works best by intratracheal and intralaryngeal injection. One cubic centimeter of the oil, of the strength desired, usually 10 or 20 per cent in liquid petrolatum or olive oil, is drawn up in a Luer syringe armed with a metal eustachian catheter. While the patient holds the tip of the tongue, wrapped in a paper napkin,, between the index finger and the thumb of the right hand, the syringe tip is introduced, guided by the throat mirror, into the pharynx (not the larynx) above and behind the epiglottis, care being taken not to touch any portion of the mouth or throat. Two-thirds of the contents of the syringe is discharged, drop by drop, into the trachea while the patient breathes quietly. The remainder is then dropped on the cords while the patient phonates. In this way, cough following injection is very slight and often absent. When present, it occurs within five minutes after the injection and lasts for a minute or two.

## BOOK REVIEWS

SUBMUCOUS RESECTION OF THE NASAL SEPTUM.—By W. M. Dunning, M. D., Consulting Otologist, Fordham Hospital; Assistant Surgeon, Manhattan Eey and Ear Hospital; etc., New York. Surgery Publishing Company, New York. Cloth $1.50.

This is a comprehensive description of the technique developed and now in use by the author, whose experience in this particular field has been most extensive, together with a consideration of nasal pathology and anatomy and of the importance of conserving the proper function of the nasal apparatus. There are twenty-five drawings which are splendidly executed.

LESSONS ON TUBERCULOSIS AND CONSUMPTION.—By Charles E. Atkinson, M. D., recently Medical Director of the Seymour Sanitorium, Banning, California. Funk & Wagnalls Company, New York. Cloth $2.50.

This is one of the several—we had almost said numerous—books that have appeared of late written for popular reading, more especially for reading and study by persons having tuberculosis. It is the most comprehensive book of its kind that has come under our notice. It may be well to consider whether it is not too comprehensive. There is a real danger in telling a sick man too much about himself and the nature of his ailment. It is sometimes easy to encourage self-treatment, even though the necessity of medical attention is stressed; and the consumptive, above all others, perhaps, needs to have himself at all times under the direction of a competent physician.

THE SURGICAL CLINICS OF NORTH AMERICA.—Volume I, Number 6. Bimonthly. W. B. Saunders Company, Philadelphia $12.00 per year.

This is the "New York Number" of the Clinics and it is packed full of interesting and instructive reports and discussions on general surgcal subjects. Lilienthal presents four clinics on chest surgery, including a case of extirpation of dermoid cyst of the mediastinum, a lobectomy for suppurative bronchiectasis, and a third case, multiple resection of ribs with collapse of chest for pulmonary tuberculosis. Downes clinic deals with jejunostomy. Neuhof has five clinics on tumors of the cord. Bancroft and Moorehead each present several clinics dealing with bone and joint surgery.

This is the index number for 1921.

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# MEDIASTINAL ABSCESS.

By W. A. Bryan, M. D., F. A. C. S.,
Nashville, Tennessee.

The rarity of mediastinal pathologic conditions and the lack of importance attached to them can be realized readily by any one who undertakes even a cursory review of the subject in the literature. This lack of literary records in no doubt due to the infrequency with which such lesions have been met and diagnosed, and the still greater infrequency with which surgeons have been willing to attack them, although the results have been, in the hands of those bold enough to offer operative relief, much more favorable than those obtained in other fields far more willingly attacked by the average operator. This failure to record the pathologic story of the mediastinum has not been confined to surgeons and internists, but to pathologists themselves. Kaufmann, who might be praised for having embodied a more complete record in his text on pathology than most writers, does not even mention inflammatory conditions of the mediastinum.

The inflammatory processes of the mediastinum are said, by most authors who commit themselves on this point, to be secondary in every instance to some more or less remote infection, or due to trauma that has opened an atrium from contaminated surfaces directly into the mediastinum. It is doubtful whether this view can be maintained and made to stand the test of close study, unless all cases of deep infections be regarded as secondary; for there can be no doubt that the blood often carries bacteria which may lodge at various points and result in infection, when no discoverable primary lesion is present, and there is no good reason I can see why the mediastinal tissues should be excepted. The sources of this vast majority of mediastinal abscesses are direct extension from inflammatory processes in the mediastinal bony encasement, such as the sternum, the clavicle, the vertabrae; or from soft structures which pass through it, as the oesophagus, and trachea and bronchi; or from adjacent organs, whose infections are carried to the mediastinal lymph-nodes, as the lungs and pleurae; or from the neck, through the anatomic planes of which infection may descend from infected lymph-nodes, or from such operative wounds as are made in oesophagotomy, tracheotomy and thyroid operations, when any of these become infected abundantly at the time of operation, or so soon afterwards that granulations have not had time to seal the channels through which such infection descends into the mediastinum. The condition has been found complicating acute articular rheumatism, erisypelas, smallpox and pneumonia. Of course, it may occur in pyemia.

For surgical and diagnostic purposes, possibly also for pathologic reasons, it is necessary to consider mediastinal abscess, whatever may be the source, as anterior and posterior, not to mention the very good anatomic reasons for such division. An idea of the incidence of abscess of the mediastinum in the anatomic compartments can be had from a collection of 65 cases by Hare. There were 36 acute cases in this group, of which 30 were in the anterior mediastinum, four in the posterior, and two cases in which both divisions were involved. There were 29 chronic cases. Of these, 20 occupied the anterior, 8 the posterior mediastinum, and only 1 occupied both. So that of the acute cases 82 per cent were anterior, 11 per cent posterior, and 7 per cent in both; while of the chronic group only 69 per cent were anterior, 27 per cent posterior, and 4 per cent in both spaces. The most frequent occurrence of the chronic type in the anterior space is doubtless due to the contribution from tuberculosis of the dorsal spine, or the prevertebral tuberculous abscess.

The important factors in the diagnosis of this condition are the history, the general symptoms, the local symptoms and signs, and x-ray demonstrations.

The history of some of the conditions which may cause mediastinal abscess is all important, as histories are in the vast majority of diagnoses; and, parenthetically, there seems to be a temptation to neglect them directly in proportion to their importance. But history cannot always be procured for lack of intelligence of the patient, and sometimes there is no history to be had except that of the onset of the mediastinitis. Second, the general symptoms are those of septic intoxication, if the cause is septic, and are in no particular different from the general symptoms of sepsis, acute or chronic. Still it must not be forgotten that tuberculous abscesses are found in the mediastinum, which will show local signs and symptoms plus the local evidence of the primary tuberculous focus, plus such general evidence as that particular focus may give, yielding septic evidence in preponderance if there is a notable secondary pyogenic infection, or only evidence of tuberculous infection, if this is present in pure culture.

Third, the predominant local evidence of mediastinitis, suppurative or presuppurative, is pain. This pain is naturally more likely to be intense in the acute than in the chronic form of mediastinitis. It is not to be concluded from this statement, however, that the chronic forms are painless, or that they may not produce intense pain. The pain is usually retrosternal and radiates to the posterior chest wall, either to the vertebral column or the scapulae, or to both. If the inflammatory process is in the posterior mediastinum, the spinal nerves may be so irritated as to cause pain in the anterior portion of the chest, and thus cause a confusing symptom, unless additional evidence is employed to locate the abscess.

Local evidence of anterior mediastinitis may be found sometimes in sensitiveness to pressure on and slight discoloration of the skin over the sternum, with the presence of edema of the subcutaneous tissues covering it. Pulsating pain, when present, is not to be overlooked; it is due to the dilation and contraction of the heart. This same action causes pulsation of the fluid, which can be discovered by touch, if the pus has burrowed through the chest wall or upward to the suprasternal notch. Restlessness, dyspnoea and anxiety may result from the pressure, and the heart may become irregular or the paradoxic pulse may be present.

When untreated these abscesses sometimes disappear. It is probable that only those which are tuberculous disappear with any frequency by absorption. The more usual outcome is death, if the abscess fails to rupture. The channels of escape by rupture are perforation of the chest wall or into the oesophagus, the trachea, the pleural cavity or the pericardium. Recovery has been known to follow all these accidents, and, while they may jeopardize life, they do not render the prognosis hopeless.

These cases are largely hopeless without surgery, and surgery is to be employed only when the primary disease and the general conditions are such as do not render the case incurable. There is no need to discuss operative measures in detail. They are founded on the principle of opening adequately and drainage. Anteriorly the operation required may vary from a simple incision and introduction of a tube into the perforative opening between the ribs to excision of the ensiform cartilage and splitting the sternum full length to obtain entrance to the mediastinum. Posteriorly drainage has to be accomplished by costotransversectomy. This plan of operation has given nineteen cases of operative recovery in a group of 24 cases operated on. I quote a case briefly reported in Osler's Modern Medicine: "A carpenter, aged 42, had catarrhal bronchitis, with dyspnoea, beginning in November. The cough was loud and clanging, and the sputum frothy. There was the sensation of a valve-like obstruction in the trachea, which was relieved by lying on the left side, but greatly increased by lying on the back. There was bronchial fremitus, with the increased respiration of exertion most marked on the right side; coarse piping ronchi were audible in inspiration, and a wheeze in expiration. He had intervals of relief until the following February, when the dyspnoea grew much worse, the temperature began to rise and the sputum became thick, tenacious and greenish yellow. In a few days the dyspnoea and cyanosis became very marked and rales were abundant. An emetic was given, but the vomiting was followed by increasing distress for a few hours. The temperature rose to 102 and pulse to 120. A week later there was a profuse discharge of pus, and he died in a few hours. An autopsy was not permitted.''

The following convalescent case I have on hand has been of remarkable interest to me, and is the immediate cause of this study:

Mr. K. G., age 24, had measles, mumps and chickenpox in early childhood, pneumonia three times, last attack six years ago. Had severe attack of influenza in 1918.

His present complaint (April 21, 1921) is a mass on chest to left of sternum and pain in left shoulder. This pain began April 3, 1921, suddenly, in left side of neck and in left shoulder. In a couple of days the pain grew considerably worse. Patient says pain felt like a ''crick in the neck.'' The mass began its appearanee to the left of the sternum over second intercostal space. When he first consulted his physician, on April 10th, he complained of deep pain under this region. At that time his temperature was 99. He described the pain as of a deep aching quality, saying the mass was sensitive and hurt worse on coughing and deep inspiration.

Physical findings: temperature 102 2-5, pulse 96, respiration 28, nutrition good.

Head negative, eyes, ears and nose negative. Mouth, teeth, throat in excellent condition.

Neck shows thickened mass anteriorly at the base, which seems to extend upward from behind the sternum. The skin over this mass is red and exfoliating from repeated applications of iodine. Lungs normal. Heart normal. There is a mass three inches in diameter and one inch in thickness lying beneath the inner end of left clavicle. This mass covers left half of upper sternum. It is fluctuant and tender. It pulsates synchronously with the heart beat. There is no bruit and respiratory sounds can be heard through it. There is no apparent subcutaneous connection between this mass and the one at the base of the neck . The latter seems to have come up from beneath the clavicle and the sternum.

Abdomen normal, except for double oblique inguinal hernia and neither testis is descended. Palpation failed to reveal their presence in the canals.

Reflexes normal. Lymphnodes not enlarged. No nodules on anterior surface of tibiae. Aspiration of larger mass showed pus. Skiagraph showed a considerable mass in the upper mediastinum and extending to left. No change in the lower. The roentgenologist interpreted the skiagraph to indicate that the pus originated from mediastinal surface of left lung. Uurinalysis, 1018, acid; albumen, sugar, pus and blood negative. Epithelium positive. Casts, crystals, bacteria negative. White blood count 15,000. Coagulation time five minutes.

This man was operated on under ether anaesthesia on the twenty-second. A U-shaped incision was made over the chest down to the bone, the apex of the curve lying over the midsternal line. The flap, consistng of muscles, fascia and skin, was turned back and a large amount of pus, probably a half pint, escaped; an opening three-fourths of an inch in diameter was found extending through the second left interspace into the mediastinum. An opening was made through the flap near the base and a large rubber tube containing gauze was inserted down to, but not into, the mediastinal space, and stitched in position. There was no disturbance of pulse or respiration when the pus escaped.

This man developed considerable dyspnoea on the following day, but subsequently admitted that it was fright. Since then he has continued to improve, and is at this time practically well.

# A STUDY OF ADAMANTINOMA WITH REPORT OF A CASE.*

By Wm. G. Carnathan, M. D., from the Pathological Laboratories of St. Thomas Hospital and the Department of Pathology, Vanderbilt Medical School, Nashville, Tenn.

The solid portion of an adult tooth, as is well known, is composed of three calcified substances, the dentine, enamel, and the cement; the dentine and cement being of mesenchymal origin, while the enamel is formed from ectoderm (Lewis and Stohr)[1]. As adamantinoma and other dental tumors no doubt have their origin in these embryonic tissues, it is thought advisable to review briefly the changes which they undergo in the formation of the teeth.

As can be seen from Figure 1, the basal cells of the oral epithelium may be followed as a distinct layer over the dental lamina and enamel organ. This would suggest that the enamel organ should be regarded as an infolding of the oral epithelium (Lewis and Stohr)[2]. Epithelial remnants from the lamina have been found in the gums at birth and have been mistaken for glands (Figure 2). These remnants, like other epithelial remains, may occasionally develop abnormally, giving rise to cysts and other tumors.

In 1885 Malassez[3] described numerous cell groups which he found in the fetus scattered along the borders of the teeth from apex to crown. About the enamel organ lie groups of cells, which show transitions between cylindrical enameloblasts, round cells, and stellate cells. Malassez interpreted these cell groups as analogues of the very rich dental apparatus of some lower vertabrates, and as giving rise to the so-called third dentition. These cell groups are derived from invaginations of gingival epithelium which go to form the enamel organs. According to Ewing[4], the entire group of solid and cystic malignant epithelial growths arising in the maxillae have their origin in the paradental epithelium. They are solid or cystic growths, located within the alveolar borders, excavating a cavity within the maxilla, and distending the tissues until they become surrounded by a thin parchment-like, bony capsule. The cysts contain serous fluid or mucus, and scaly material. Cellular overgrowths from the cyst wall may give the picture of spindle cell or myxosarcoma (Albarran)[5], and it is probable that by exaggeration of this process apparently pure sarcomata may arise. Bilateral cystic tumors have been observed by Flaubert[6]. As a rule the solid tumors are more cellular and more malignant. Some of the tumors from their early stages project from the alveolar border as a form of epulis. The ordinary epulis, however, fails to distend the ramus of the jaw (Ewing)[7].

The epithelial cells in adamantinoma exhibit all variations in form between stratified squamous epithelium and specialized adult enameloblasts. . The epulis of adamantinoma presents a fibrous, mucoid or giant cell sarcomatous stroma, with supporting cords and groups of epithelium type. Haasler[8] has has shown that the common epulis is usually connected with a granuloma of the dental root.

In certain types of adamantinoma considerable areas of spindle cells may simulate sarcoma. Such spindle cells may be extremely small, suggesting round cell sarcoma. The stroma of some adamantinoma may exactly reproduce the structure of the giant cell epulis. Such is the picture presented by the case under consideration, as will be seen from a study of the photomicrographs of the tumor removed in 1922 (Figures 3 and 5). The capsule of the tumor contains portions of bone and the blood vessels are markedly overdeveloped, somewhat suggestive of an angioma.

The following case is reported because of several interesting facts connected with it. In the first place, the patient had a tumor removed from the right superior maxilla in January, 1921, which was diagnosed spindle cell sarcoma; secondly, the patient had another tumor removed from the left inferior maxilla in January, 1922, which was diagnosed adamantinoma, epulis type.

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*The author is indebted to Dr. L. W. Edwards for the privilege of reporting and studying this case.

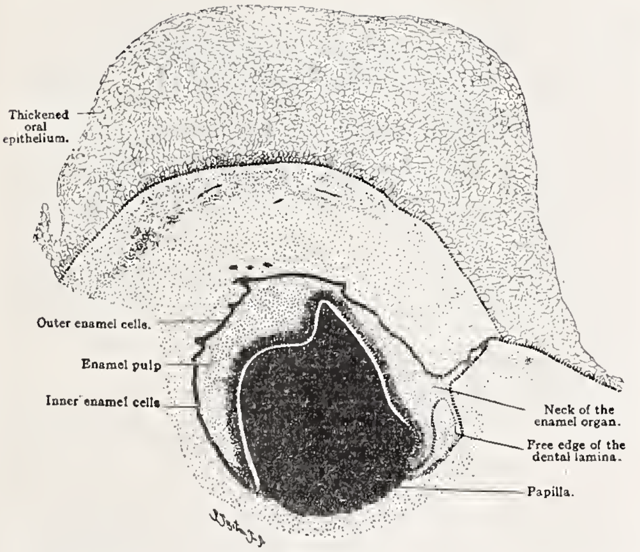
Thickened oral epithelium.
Outer enamel cells.
Enamel pulp
Inner enamel cells
Neck of the enamel organ.
Free edge of the dental lamina.
Papilla.

Fig. 1.—From a cross section of the upper jaw of a human embryo of five months. X42.

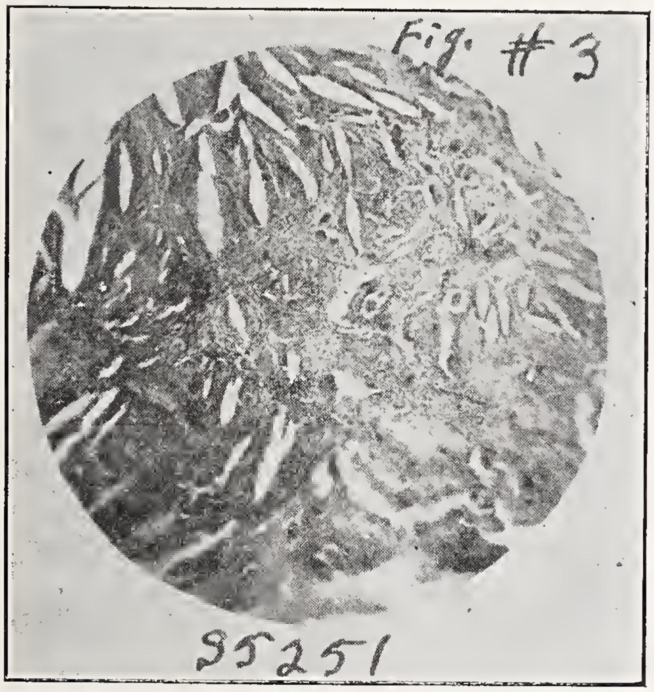

Fig. 2.—Section of inferior maxilla of fetus of five months, showing epithelial cell groups beneath gum. **(After Malassez.)**

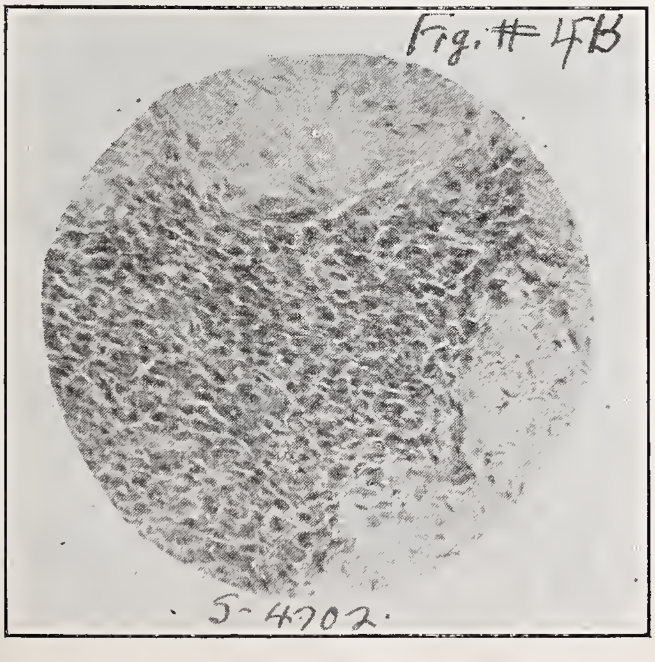

Fig. 4B.—A higher power of a portion of Fig. 4A.

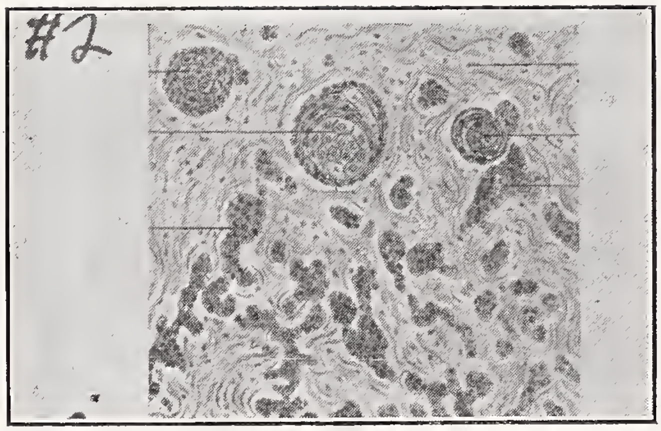

Fig. 3.—Photomicrograph of tumor removed from left inferior maxilla in 1922.

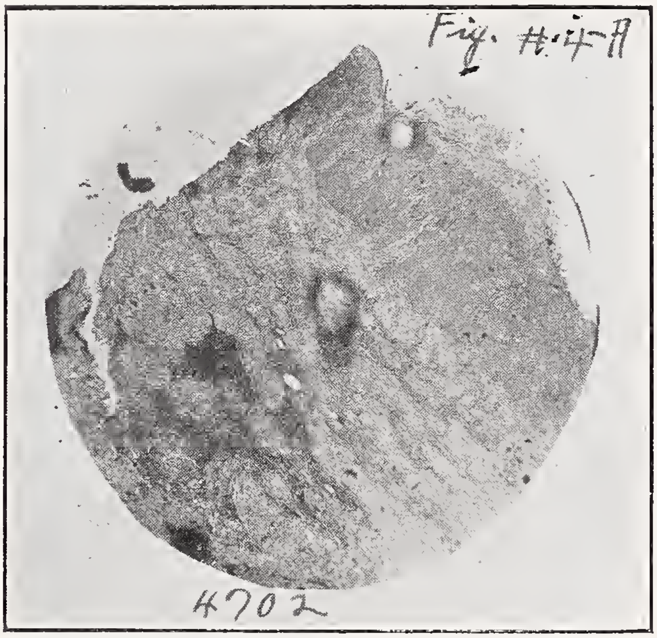

Fig. 4A.—Photomicrograph of tumor removed from the right superior maxilla in 1921.

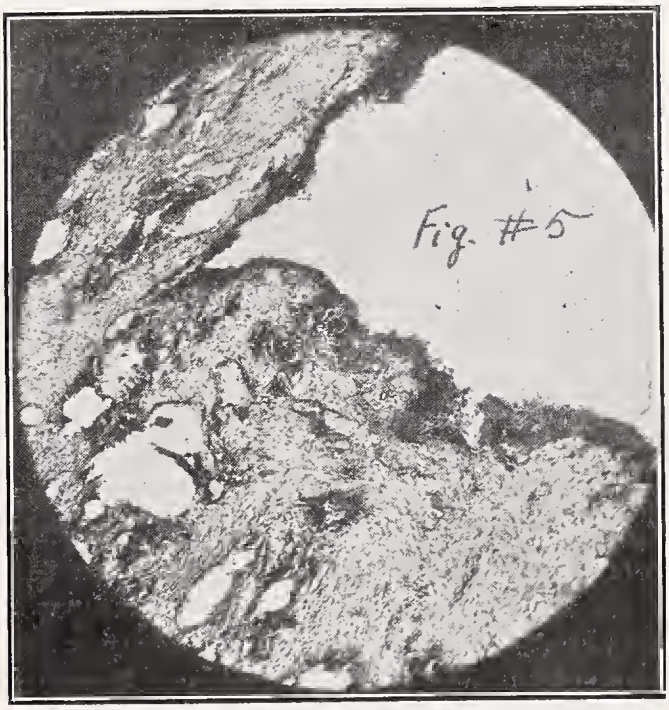

Fig. 5.—Photomicrograph showing the lining of the cyst removed in 1922.

### History Abstracts.

**First entry, January 27, 1921.** Mrs. M. H., age 64. Last spring patient noticed a swelling inside of her mouth at the root of one of her upper teeth. Later this tooth was extracted and the socket curetted, and pus was found coming from the bone. Two months ago (in November 1921) patient had all of her teeth extracted. At the present time there is a swelling forming at the site of the first carious tooth that was removed. Patient states that she has been troubled for a long time with a fullness in her head, especially in her temples and at back of head. Patient has had usual diseases of childhood, no complications. Menopause at 45 years of age. No history of tuberculosis or cancer. No heart or kidney trouble.

**Physical examination.** Negative except that on the upper gum on the right side there is an enlarged, reddened, tender swelling, the size of a partridge egg. The tumor was removed on January 28, 1921, and the patient made an uneventful recovery.

**Second entry, January 19, 1922.** Patient comes for relief of tumor of the left lower jaw. Patient first noticed an enlargement of the lower jaw a few weeks ago. The tumor has caused no pain nor inconveniences. Patient gives history of having had a tumor removed from the upper jaw last year. Patient has been in perfect health, lost no weight, and appetite is good. Other points of history given above.

**Physical examination.** Negative, except for a cyst of the right lower jaw, which measures approximately 4x2.5 cm. The cyst was removed on January 20, 1922, and patient recovered without complications.

### Discussion.

In view of the fact that a diagnosis of malignancy had been made on the tumor removed in 1921, and that the microscopic picture of the tumor removed in 1922 suggested the epulis of adamantinoma, it was thought advisable to study again the microscopic sections of the tumor removed in 1921. Not only were these old sections studied, but new sections from the gross specimen were prepared and studied. No evidence of malignancy was observed in any of these sections. However, small areas of spindle-shaped epithelial cells were seen beneath the surface epithelium of some of the sections. The cells of these areas, however, showed none of the changes usually regarded as malignant, and the areas were sharply demarcated from the surrounding connective tissue stroma. In addition, the cells of these areas showed a striking resemblance to the epithelial cells of the surface layer. The microscopic appearance of these areas is shown in Figures 4-a and 4-b.*

Sections of the tumor removed in 1922 show a number of very interesting microscopic pictures. Those of the cyst wall show it to be lined by epithelial cells very much like those seen in the first tumor removed (Figure 5). Portions of the cyst wall also show a thin layer of bone in certain areas. In other areas, the picture presented is that of a giant cell epulis (Figure 3).

The clinical features of the tumor are summarized as follows:

1. They usually occur in adults, but have been observed as early as the sixth year (Coate)[9].
2. The duration is usually long, from 18 to 38 years (Kruse[10], Malassez, Bryk[11], and Albarran).
3. There is usually a history of extraction of a carious tooth some years before the tumor develops.
4. Women are more often affected than men (Ewing.)[12]
5. The lower jaw is the chief seat of cystic tumors (Pincus[13]) while the upper yields most of the solid and more malignant growths.

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*The author is indebted to Dr. B. T. Terry, of the Department of Pathology, Vanderbilt Medical School, for the photomicrographs accompanying this article.

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## THE DIAGNOSIS OF CHRONIC APPENDICITIS.*

By Franklin B. Bogart, M. D., and
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That chronic appendicitis is of frequent occurrence and that it may cause a great variety of symptoms is a well recognized fact. Besides the group of cases presenting abdominal symptoms, there are those cases in which there are no abdominal symptoms or in which the abdominal symptoms are so slight that the patient lays little stress on them and where the chief complaint is recurring headaches, failure to gain weight, persistent vague symptoms, as lack of energy and incapacity for exertion, or any of the numerous symptoms associated with a focal infection.

In the group of cases presenting abdominal symptoms there may be a well marked chain of symptoms that point strongly to the appendix as the seat of trouble, or the symptoms may simulate gastric or duodenal ulcer, gall bladder disease, pelvic disease, or renal conditions.

The very fact that such a wide range of symptoms may be caused by chronic appendicitis makes the diagnosis difficult and makes it necessary that complete diagnostic studies be made on these cases before an opinion is given.

**History**—One of the most important things to consider in a suspected case of chronic appendicitis is the history. All cases of chronic appendicitis at once fall into two groups—those with a history of an acute attack at some previous time, and those in which there is no history of abdominal pain localized in the right side.

Gaither[1] further divides all cases into:

(1) Chronic appendicitis with a definite history of acute attacks extending back for several years.

(2) Chronic appendicitis with a history of vague or acute earlier attacks which were probably, though not certainly, attacks of acute appendicitis.

(3) Chronic appendicitis with a history of subacute attacks, pain down the right leg, urinary symptoms, severe constipation, but not true typical outbreaks.

(4) Appendicitis fundamentally chronic with no acute or subacute phase.

(5) Appendicitis which is primarily chronic, but where the involvement of the appendix is only a part of a low grade inflammatory condition which involves the lower right quadrant.

One of the most frequent types of chronic appendicitis cases are those whose chief complaint is "stomach trouble." In a series of seventy-one cases of chronic appendicitis reported by W. F. Cheney[2], thirty-one belong to this group.

Among these cases the symptoms are not always the same. Some cases give a history that is very suggestive of gastric ulcer. There may be a period of several weeks during which there is a burning sensation in the right or left hypochondrium or in the epigastrium. This pain or discomfort may come on one to four hours after eating and be accompanied by nausea, belching and waterbrash. After these symptoms have lasted for a period of weeks there may be a complete remission of symptoms and a few weeks or months later the whole chain of symptoms recur. In these casese there is a hyperchlorhydria, which is reflex to the condition in the appendix.

Other cases resemble chronic gastritis in which there is a sense of fullness just after eating, belching of gas, regurgitation of food, tenderness and distension. In these cases there is a subacidity and in some of them there is a pylorospasm.

Another large group of cases are those having abdominal pain. In some of these cases the pain is localized and in others diffuse.

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*Read before the East Tennessee Medical Association, Knoxville, Tenn., Nov. 13, 14, 1921.

In some it is constant and in others periodical. This pain may be described by the patient as an ache, a hurting, a sense of distension or soreness. It may be so severe as to be incapacitating or may be so mild that it is simply annoying.

In a small group of chronic appendices one of the chief complaints will be urinary symptoms. These cases are apt to be overlooked, but when a case has persistent urinary symptoms and a thorough urological study does not reveal any pathology in the kidneys or bladder, one should always remember that a chronic appendix may produce such symptoms. In some of these cases there is a long posteriorly placed appendix where the tip has become attached to the bladder, but this is not necessary, for a chronic appendix may produce urinary symptoms through reflex agencies (1).

When the symptoms are outside the abdomen there may be a persistent headache, lack of energy, failure to gain weight, pain down the right leg, or incapacity for exertion. When such obscure symptoms exist, the possibility of an appendix should not be overlooked in considering the case, especially if these symptoms are associated with marked constipation.

Constipation is a very common symptom, and, while many other causes than chronic appendicitis may be responsible, one should never lose sight of the fact that a chronic appendix is a frequent cause. Gaither[1] and others have pointed out that a chronic appendix, by its irritating effect, may first cause a spastic colon with a consequent damming back of the fecal material into the cecum and a subsequent dilatation of the cecum and often, ultimately, a colitis. When such conditons are caused by a chronic appendix all efforts to relieve them without operation are usually futile. In other cases where there is formation of adhesions, the passage of gas and fecal material through the cecum and ascending colon causes a tugging on these adhesions which results in a reflex disturbance of peristalsis and a stasis, atony and dilatation and, sometimes, colitis.

In exceptional cases instead of constipation there may be persistent diarrhea. One case of this type recently came under our observation. A diagnosis of chronic appendicitis was made and complete recovery followed removal of the appendix.

**Physical signs**—In the cases where there are definite symptoms pointing to the appendix, and, usually, where there are other abdominal symptoms, there will be definite physical signs in the region of the appendix. W. F. Cheney,[2] in a series of seventy-one cases, found definite physical signs in sixty-two cases. There may be a palpable mass in the region of the appendix with tenderness, but often there is no mass. The muscles over the lower right quadrant may be rigid or spastic. The area of tenderness may be just over McBurney's point, but, on the other hand, the most tender area may be high up along the ascending colon or low down in the inguinal region.

In a considerable number of cases there are no physical signs in the abdomen. There may be no physical signs because the appendix lies beneath the cecum, because the appendix is fibrous and obliterated and is bound down by adhesions, or because the process is quiescent.

**Gastric analysis**—A gastric analysis in a case of chronic appendicitis may show a hyperchlorhydria, normal acid contents, or a subacidity.

The cases which simulate gastric ulcer have a hyperacidity, while those which simulate gastritis have a subacidity (2).

**Blood examination**—There are no constant findings in the blood picture in chronic appendicitis. Complete blood counts are valuable in this condition as in many other chronic conditions, but there is no finding that is of any material aid in ruling out other conditions than chronic appendicitis. Friedman[3] has reported a series of cases in which he noted an increase in the mononuclear and transitional cells. During the past six months we have made complete blood counts on thirty cases diagnosed as chronic appendicitis and have been unable to confirm his findings.

**Radiographic examination**—Most writers agree that with the advances that have been made in the diagnosis of chronic appendicitis by means of radiographic examination a definite diagnosis of chronic appendicitis is rarely justified at the present time until plates and floroscopic examination have been made. Many conditions that simulate chronic appendicitis can be definitely eliminated and in a well developed chronic appendix very definite evidence can be found by the combined plate and floroscopic examination.

The radiographic examination is very useful in differentiating between the cases that simulate gastric or duodenal ulcer and true cases of ulcer. When the history and gastric analysis indicate ulcer, but where the x-ray examination shows a normal antrum, cap, and pylorus, the diagnosis of ulcer would be very dubious. Radidographic examinations coupled with a cystoscopic examination will eliminate kidney conditions that may simulate chronic appendicitis.

Authorities are agreed that a buttermilk meal visualizes the appendix in a greater number of cases than a meal that does not contain fermented milk. It has been our procedure to give a meal on the first day consisting of four ounces of cream of wheat and four ounces of barium sulphate and on the second day of the examination to give a suspension of four ounces of barium sulphate in buttermilk while the patient is being fluoroscoped. This procedure is followed because the cream of wheat meal gives a more accurate reading on the motility of food through the gastro-intestinal tract and is used as a routine in all gastro-intestinal radiographs. There is a difference of opinion as to the best time following ingestion of the meal for obtaining visualization of the appendix. Most workers think it is most often visualized between the sixth and twenty-fourth hour periods, but Skinner[4] contends that the forty-eight hour period gives the greatest per cent of appendicitis that can be visualized. The appendix may be filled by antiperistalsis or sedimentation and it is Skinner's contention that since antiperistalsis plays the greatest role it is natural to suppose that the appendix would be the most often visualized at the later period.

Diamond[5] has very well summarized the points that are brought out when the appendix is visualized. They are as follows:

1. Size, length, and calibre. Normally narrow and ribbon-shaped, average length three or five inches, may be ten inches long.
2. Appearance. Normally uniform in diameter. Abnormally kinked, looped, constricted, or vacuolated.
3. Direction. Normally directed downward. Abnormally directed in any direction.
4. Fixity. Normally freely movable. Abnormally may be adherent anywhere along its course.
5. Tenderness. Elicited by direct palpation of the visualized organ.
6. Emptying time. Normally begins to fill at six-hour period after ingestion of barium meal, should begin to empty after twenty-four hours. In abnormal appendices the appendix may remain filled many days.

In many cases where the appendix cannot be visualized by anterior-posterior plates it may be visualized by oblique plates or by manipulation under the fluoroscope.

Other valuable information that may be gained from a radiographic examination and which is indicative of a chronic appendix or of ileo-caecal adhesions are:

1. Stasis in the ileum.
2. Cecal stasis.
3. Adhesions between terminal loop of ileum and the cecum.
4. Incompetent ileo-caecal value.
5. Tenderness and lack of free motility of the cecum.
6. Stone in the appendix.

It has been our experience with the meal which we use that when the head of the barium column has not entered the cecum at the end of the six-hour period invariably there is a chronic appendix or a chronic inflammatory involvement of the ileo-caecal region.

Howard[6] has pointed out the fact that the following findings may be caused by a chronic appendix and their presence should lead one to careful examination of the lower right quadrant.

1. Hypermotility.
2. Spasm at the center of the stomach (hour glass stomach).

3. Pylorospasm.

4. Atonic conditions.

5. Entero-spasm at the center of the transverse colon.

6. Pressure over the region of the appendix may cause visible spasm of the stomach wall (fluoroscopically).

**Differential diagnosis.**—(1) Duodenal ulcer. Ulcer history of periodicity of pain and time relation to food intake. X-ray examination and gastric analysis are particularly useful in differentiating this condition from chronic appendicitis.

(2) Gastric ulcer. Either may have a hyperchlorhydria and a pylorospasm. X-ray most valuable aid in making differential diagnosis. Deaver[7] believes that appendices that contain stones, and those that have undergone fibrosis are most apt to cause reflex gastric distress.

(3) Gall bladder disease. Character of pain very great help in differentiating the two conditions. In a calculous cholecystitis a colicky pain, and in non-colculous cholecystitis pain referred to the shoulder.

(4) Renal conditions. Differentiated by x-ray and cystoscopic examination with ureteral catheterization.

(5) Pelvic disease. Best differentiated by a careful history and a thorough pelvic examination. X-ray valuable in eliminating gastro-intestinal pathology.

There are other conditions that do not often have to be differentiated from chronic appendicitis but which should always be borne in mind. They are epigastric hernia, incipient or femoral hernia, early psoas abscess, diverticulitis, aneurism of the abdominal aorta, gastric crises of tabes, and early malignancy of the appendix.

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# GLAUCOMA OPERATIONS.*

By S. T. Hubbard, M. D.
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In complying with our Secretary's request for a paper on glaucoma, the subject "Glaucoma Operations" was chosen, and a review of the available literature made, in an attempt to establish some definite connection between this disease and its surgical treatment and to help answer the question: What operation do you do for glaucoma?

When Von Graefe did his first iridectomy in 1856, glaucoma was considered mainly from the standpoint of increased tension, and great hopes were shattered when time proved that increased tension did not always yield to iridectomy. Further study and experience brought out the division of glaucoma, from an operative standpoint, into :(1) acute (inflammatory, and (2) chronic (non-inflammatory), and taught the marked efficiency of iridectomy in the former, and its equally marked inefficiency in the latter class of cases. Then followed an era of many new operative procedures, all directed towards lowering the tension of the chronic, non-inflammatory cases, until today we have several, equally efficient, from which to choose.

But time has now again taught that no present known single operation can be depended upon, for some cases yield to one method, and others, apparently identical, are not at all influenced by it. And we are still face to face with the unanswered question: Why? Why does the operation of trephine relieve the tension in A's right eye, but is of no avail in his left eye? Why does the first trephine on B's eye give no result and relief come only after the second, third, or perhaps fourth trephining is done? Why does a trephine fail, and success come when some other, less efficient (?) procedure, as cyclodialysis, is combined with it is a subsequent operation? Why is the tension still high, even though there is a perfectly filtering cicatrix? Why does the tension not reduce at the time of operation even though the aqueous has been evacuated and an iridectomy made and then become normal two or three days later?

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*Read before Section of Ophthalmology and Otolarygnology at Annual Meeting of Tennessee State Medical Association at Nashville, April, 1921.

Though a review of the literature does not help much in directly answering these questions, it does show the fact that glaucoma is still receiving much study and further classification; that the causes of operative failure are more detailed and, so, of more value in selecting the proper procedure; and, that a surgeon's glaucoma armamentarium consists of a thorough knowledge of the classification of, and various operative procedures for the disease.

Glaucoma may be classified, from an operative standpoint, in several ways:

1. According to the kind of inflammation present.

A. Inflammatory.
  1. Primary.
    a. Acute.
    b. Subacute—becoming acute or chronic.
    c. Chronic.
  2. Secondary.
    a. To exudative processes.
      (1) Plastic iritis, irido-cyclitis, cyclitis. Here the chronic cases, especially, cause attachment of the periphery of the iris to the corneo-scleral junction or of the more central portions of the iris to the anterior lens capsule.
    b. To non-exudative processes.
      (1) Sclerosing keratitis. Due here to partial closure of the lymph spaces at the sclerocorneal junction by the sclerosing process following the disease.
      (2) Interstitial keratitis. Same cause as No. 1.
      (3) Lens wounds and luxations
      (4) Incarcerated iris.
      (5) Detached retina.
      (6) Thrombosis of retinal vein.
      (7) Hemorrhagic retinitis, choroiditis.
B. Non-inflammatory.
  1. Primary.
    a. Buphthalmus (glaucoma of childhood).
    b. Glaucoma simplex of congenital origin.
    c. Glaucoma simplex of adults (noncongestive glaucoma of Elliot).
  2. Secondary.
    a. After cataract extractions.
      (1) With synechia of the lens capsule with the iris or hyaloid membrane of the vitreous.
      (2) Following discission for secondary cataract.
      (3) Incarceration of the iris.
      (4) Idiopathic.
      (5) Plastic iritis.
    b. Ectasia of the cornea and sclera. With scar and incarceration of the iris.
    c. Partial apposition of the iris against the posterior corneal surface, as in old glaucoma cases
    d. Intra-ocular tumors.
    e. Cysts in the anterior chamber.
    f. Congenital coloboma of the iris.

II. According to the depth of the anterior chamber.

A. Normal. Sometimes seen in chronic non-inflammatory glaucoma (non-congestive glaucoma of Elliot).
B. Shallow. Sometimes seen in simple glaucoma of congenital and adult origin, old glaucoma cases with apposition of the iris to the corneal surface, swollen cataracts, inflammatory glaucoma, dislocated lens.
C. Deep. In buphthalmus, luxations of the lens.
D. Irregular. In secondary inflammatory glaucoma, post-cataract capsule adhesions, incarcerated iris, wounds (with swelling) of the lens, dislocation of the lens.

III. According to tension.
  A. Increased—in about all forms of glaucoma, though it may be.
  B. Normal—either part or all of the time, to tonometer[1] or fingers, in glaucoma simplex of adults (non-congestive glaucoma of Elliott).
IV. According to scleral thickness.
  A. Thin sclera in buphthalmus and scleral ectasia.
V. According to the age of the glaucomatous attack.
  A. Parker has attempted to divide clinically all cases of chronic non-inflammatory glaucoma into two groups: (1) simple anterior glaucoma, (2) simple posterior glaucoma. The classification is based upon the assumption that either the anterior or posterior lymph system is more seriously involved. The increase of tension of the eyeball is due to the retention of fluids that normally have two sources of outlet, one through the anterior lymph system through the spaces of Fontana, and the other through the posterior lymph system, the perichoroidal space, around the venae verticosa into Tenon's space, and around the optic nerve.

The six most frequently employed operations for the relief of glaucoma may be stated to be:

1. Iridectomy.
2 Trephine of Elliot.
3. Lagrange operation.
4. Paracentesis of the anterior chamber.
5. Posterior sclerotomy.
6. Cyclodialysis of Heine.

Because of the time limit on papers, only the first three will be considered.

**Iridectomy.**—The iridectomy is so familiar as not to need especial mention. The object of the operation is the opening up of the filtration area at the angle of the anterior chamber. The incision should be as far back in the sclerotic as possible without injuring the ciliary body, the keratome going anterior to the iris, a wide portion of which should be removed, and no stump of which should remain at the attachment to the ciliary body. The iris should be excised from above, for the coloboma is less disfiguring and troublesome there, and the upper lid prevents an excess of light entering the eye.

While the anesthesia should always be genaral, some surgeons use a local when the tension is not over plus 1. Local anaesthesia should be preceded by eserine until the pupil is pinpoint and should be injected sub-conjunctivally as well as dropped into the eye.

The failures of iridectomy may be due to:

1. Dislocation of the lens, which moves forward and blocks the angle of the anterior chamber.

2. Wounding, with subsequent swelling of, the lens.

3. Hemorrhage into the vitreous.

4. Atrophy of the iris.

5. The knitting closely together of the cornea and iris in old cases of glaucoma.

6. By leaving a stump of iris, the cut edge of which becomes entangled in the scar.

Hemorrhage into the vitreous is best prevented by slowly evacuating the anterior chamber.

**Trephine.**—The Elliot trephine, the object of which is the formation of a permanent artificial avenue for filtration from the anterior chamber to the exterior of the eyeball (2), has been used more frequently during the past fifteen to twenty years than any other procedure and much valuable information has been learned about it. While many of the complications and disadvantages are not always determinable, or preventable, in advance, others can be avoided by proper selection of cases.

The disadvantages and complications may be grouped under the following headings:

1. Hemorrhage-intraocular and retrochoroidal.
2. Iritis.
3. Detachment of the retina and choroid.
4. Late infection.
5. Blocking of the opening.
6. Hypotony.
7. Prolapse of the vitreous.
8. No relief of tension.
9. Postoperative return of tension.
10. Traumatic cataract.
11. Pigmentation of anterior lens capsule (10).

The advantages are conceded by most operators to be greater ease of performance and more uniform reduction of tension without after-treatment, as where the case cannot be followed up as time goes on.

Intraocular hemorrhage, retrochoroidal hemorrhage, and detachment of the retina and choroid are probably due to the sudden lowering of the high, pre-operative tension, or prolonged hypotony, and occur most frequently in old patients and cases, or where the tension is very high at the time of operation.

Postoperative iritis may be due to the lighting up of an old iritis, or it may be that form which develops after iris traumatism from a focus of infection elsewhere in the body. The liability to a plastic iritis should be carefully eliminated and no trephine done if the opening may subsequently be filled in with inflammatory exudate.

Blocking of the opening may take place immediately after the operation by vitreous prolapse, moving forward of the lens, iris, ciliary body or a detached retina (Knapp's case); failure to do a partial iridectomy, at least; and later from the above causes or the formation of an exudate from the iris and ciliary body. Vitreous prolapse is more liable to take place in cases with degenerated ligaments and vitreous body, i. e., in old cases. This blocking means a persistence of tension at the time of operation or the postoperative return of tension.

Late infection, coming on after several years, is, perhaps, the operation's most discouraging feature and greatest cause of disrepute. At present, there is no way of knowing, at the time of operation, whether or not a case will develop late infection—a fact which makes inadvisable the operation of double trephine on the same patient. Of greater value would be the use of some other, equally efficient procedure, as the Lagrange, which is not so liable to be followed by late infection—lest we lose both eyes from this evil. Soft eyes seem more liable to infection than eyes with normal tension. (Buller).

Knapp reports a case of detachment and dragging into the scleral opening of the retina, presumably due to retrochoroidal hemorrhage following trephining. "Retinal detachment seems to come from the continued and great lowering of the tension in the large and already old eye."

**Lagrange.**—The Lagrange operation, an operation combining sclerectomy and iridectomy, aims to produce a definite scleral fistula. It opens, largely, the choroidal spaces which are thereby put into communication with the anterior chamber. (4)

While the operation ranks as the equal of the Elliot trephine, it has not been so universally employed in the past, though it will probably become much more depended upon in the future because it presents the advantage over the trephine in that late infection is rather of rare occurrence. For this reason the surgeon will feel that he must know the technique of both operations, that he may use a different method than trephine on one eye of his patient.

With the exception of late infection, as above stated, the disadvantages and complications of the Lagrange operation are necessarily very similar to those of the trephine, because of the marked similarity of the two. These disadvantages and complications are:

1. Hemorrhage, deep intraocular at the time of operation.
2. Blocking of the opening by falling forward of the ciliary body, lens, etc.
3. Vitreous loss. There is, perhaps, greater liability to this complication at the time of operating because of the size and position of the incision. Weeks[1], who has performed this operation a great number of times tries to lessen the second and third disadvantages by making a 5 mm incision instead of the 7 mm incision as made by Lagrange.
4. Iritis.
5. More difficult to perform than the trephine.

To offset this last drawback we have the lesser liability of late infection. Weeks (1) considers the necessity for treatment after the Lagrange operation to be greater than after the Elliot trephine and, for this reason, prefers the trephine on dispensary patients because their after-treatment cannot be followed up so thoroughly as the Lagrange requires.

**Indications for operations.**—In acute cases of primary glaucoma in which there is apposition of the iris to the cornea and a shallow anterior chamber, a broad iridectomy performed in the premonitory period between the attacks is about all that is necessary in reducing the tension and the results are usually permanent, though, rarely, a second iridectomy may be required and exceptionally it produces no effect. (4). The operation should be withheld until the tension becomes as near normal as possible, but if the tension is not subsiding in twelve hours, we should operate. It is productive of the best results then.

Iridectomy is considered by many authorities to be dangerous in those cases in which the visual field borders on the fixation point (2).

In absolute glaucoma, iridectomy gives only temporary relief (4).

In the subacute and simple chronic cases of glaucoma, one of the filtering scar operations (Elliot's trephine or Lagrange) should be chosen (1).

In secondary glaucoma accompanying acute or subacute iritis and iridocyclitis, paracentesis, repeated if necessary one or more times, followed by opening of the wound every second or third day, is usually sufficient. Rarely an iridectomy upwards is required. The paracentesis should be made at the limbus, pushing a narrow flap of conjunctiva before the knife, so that the wound at the sclero-corneal margin will be covered when the knife is withdrawn. (1)

In cyclodialysis we have an ideal operation in glaucoma secondary to or complicated by vascular disease of the retina (9).

In secondary glaucoma following cataract operations, where the cause cannot be determined, an iridectomy may control the tension (1), as may a trephine.

In secondary glaucoma, following cataract operations, where the iris has become incarcerated in the angle of the wound, if the anterior chamber is opened at a suitable place and the columns of the coloboma on the incarcerated side freely divided, hypertension will be relieved in the majority of cases. (1)

In the secondary glaucomas that follow sclerosing keratitis and interstitial keratitis some operation which produces a filtering scar (trephine or Elliot, or Lagrange) must be employed. (1).

In post cataract glaucoma due to prolapse of the vitreous, or in cases of post trephine due to the same cause, do the (next) trephine away from the vitreous prolapse.

**Chronic glaucoma.**—In virtually all cases of chronic glaucoma in which the anterior chamber is deep a filtering scar must be obtained. (1).

In buphthalmus paracentesis may be resorted to in the early stage of the condition. A small paracentesis, performed at the limbus, the opening being made patent every five or eight days for a few times, as required, will cause the entire condition to improve. When the patient has reached the age of four to eight years, trephining is the operation of choice, a trephine not more than 1.5 mm in diameter being used. (1). The trephine opening has a tendency to enlarge by stretching and the retina to become detached (especially in large eyes or old cases) therefore do not use too large a trephine. Iridectomy in buphthalmus is not satisfactory "because of the extreme thinness of the cornea and sclera" (1), and defectiveness of the zonula (7). A liberal piece of the iris should be excised at the time of trephining.

"In other forms of infantile glaucoma in which the globe is not enlarged, some other operative procedure (than trephine) may be employed." (1)

The Lagrange is not satisfactory in buphthalmus "because of the difficulty of obtaining a filtering cicatrix without endangering the contents of the globe." (1)

In the classification by Parker, if the obstruction is in the anterior lymph system, a broad iridectomy is the operation of choice.

From the above remarks the cases and operative indications seem clear, but practice is disappointing for the first operation may not cure, and further procedure becomes necessary. Since no rules are known for the choice of the several operations, the report of the combination's of writers will be enumerated.

**Repeated operations.**—Lloyd, in performing a trephining for post-cataract glaucoma with a bead of vitreous above, failed to get even immediate reduction in tension when the trephine was done beside the vitreous prolapse, but obtained immediate result when the trephine was repeated at the limbus below. (3)

Dr. Knapp did a trephine, followed in three days by a posterior sclerotomy, which reduced tension for a short time. A bead of vitreous filled the original trephine opening. In twenty-six days a second sclerotomy was performed which reduced tension and, while this was done another trephine was performed which has kept the tension down ever since.

Wilmer reports a case on which he performed three separate trephinings and iridectomies.

Lister (8) reports a case of simple glaucoma in which he did a sclero-corneal trephine followed by hypotony. About four weeks later tension had risen to 55 mm Hg. A second trephine kept the tension down for a year.

**Combined operations.**—Zeeman (6) reports unsatisfactory cases after two cyclodialysis operations; a cyclodialysis followed by a trephine and success; one case in which the eye became decompensated in spite of two trephinings, and a cyclodialysis produced at the end the wished-for success; two trephinings in one eye, after one trephine on the same patient's other eye had been successful, in vain, only to reach normal and remain there after a cyclo-dialysis.

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## DISCUSSION.

DR. E. B. CAYCE, Nashville. Mr. Chairman and Gentlemen: This is a big subject. I think the doctor in his paper has covered it just as thoroughly as it is possible to cover it in that length. I think there is no type of case that is more difficult to handle. Whenever you get a patient that comes in with a non-inflammatory glaucoma, I don't think we should alarm him but I think we should impress him that he has a condition there that may not be surgical at the time but may become surgical. When you have a case of acute glaucoma as Dr. Hubbard so admirably stated, I think it is agreed by all of us that it is a surgical condition. The type of surgery, that is the type of operation, is the thing that is often difficult to decide. The last word in Surgery for glaucoma, I do not think has been written. Four or five years ago we thought the Elliott trephine was—and perhaps it was then—the ideal operation. We then began reporting cases with iritis or hypotension. As the doctor stated in the paper, it seems that there is a tendency to go back to the old broad iridectomy. I think we are indebted to the doctor for bringing this paper before us.

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DR. G. C. SAVAGE, Nashville.—I want to speak a word for the iridotasis operation, the best operation for glaucoma. It is an operation that is easily done, and there are only two things—well, three things—that you must be careful about, in doing it. One is, of course, to get the conjunctival flap without making a puncture in it anywhere, to allow you to make the corneal puncture, and really it is only a corneal puncture. If it is too large, your knuckle of iris will pull out; if it is too small, you can not get your forceps through for grasping the iris. The size of the opening in doing the iridotasis operation, should be the width of a Graefe cataract knife blade. The other point is this: if atropia is not used, before and after the operation, the knuckle of iris will tend to pull out. It might pull out immediately, therefore the atropia should be used before the operation. Besides it is easy, when the pupil is dilated, to get the margin of the iris drawn into the puncture.

The conjunctival flap is, I think, better left without a stitch. It folds back over the knuckle of iris, and it will take care of itself, the lid pressure keeping it in apposition. I have done this operation in some acute cases of glaucoma, and the results were most satisfactory. It is easier and safer to do. I think, than iridectomy—certainly better than trephining, and as good, if not better, than the LaGrange operation.

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DR. HILLIARD WOOD, Nashville, Tenn.—Mr. Chairman and Gentlemen: I wish to say a few words with regard to the tendency to hemorrhage in operations for glaucoma. I have never seen that the technique of the operation had anything to do with the likelihood of hemorrhage. In any operation for glaucoma the eye ball is opened and the tension, for the time being, is reduced to practically zero. The tendency to hemorrhage, as I see it, is dependent upon two facts: first, the length of time that the intra-ocular pressure has lasted; and second, the degeneration that has taken place in the intra-ocular blood vessels. Intra-ocular hemorrhage is more commonly met with the higher the intra-ocular pressure and the longer it has lasted. It is about as likely to occur with one technique as with another.

The question has ben asked whether trephining has any thing to do with the development of cataract. I do not think it has. We all know that cataract is a very common complication in glaucoma, with or without operation, and more so without than with operation. Cataract is one of the phases of intra-ocular degeneration in glaucoma, and to charge it up to the trephining operation is an error. Cataracts are seen in glaucomatous eyes with or without operation, and following all operations.

With regard to iritis in trephining, I think that a complete iridectomy is less likely to be followed by iritis than a peripheral, or pin hole, iridectomy. For some years I have not done a pin hole iridectomy. I formerly used a pin hole iridectomy, and had iritis and damage to vision, which I have not had since I have been doing a complete iridectomy.

In the journals and in the discussions in medical meetings we hear a lot about late infection following trephining, but frankly I have not seen it. It may be my fault, but I have not. I have had hypotony in one or two cases. Although we have several remedies which may relieve plus tension, unfortunately we have no remedy by which we can relieve minus tension. I think it is an objection that can be justly urged against trephining, that we do sometimes get hypotony.

I agree with Dr. Savage in everything he has said about iridotasis. I like it better than any other operation I have ever done for glaucoma. It must be admitted, however, that the operation is in violation of the best established rules of intra-ocular surgery, that is, that an acutal prolapse of the iris is produced. Theoretically this is all wrong, because we all know that attachment of the iris to the cornea may produce secondary glaucoma; and yet this prolapse of the iris, produced in iridotasis, does certainly relieve plus tension. I believe the best average results I have had in glaucoma operations have been with iridotasis.

The anaesthetic to be used is dependent upon the type of the glaucoma. In chronic, non-inflammatory, glaucoma local anaesthesia answers every purpose and should be employed. In acute inflammatory glaucoma the excessive vascularity will wash away the cocaine and prevent satisfactory anaesthesia. For this reason in acute inflammatory glaucoma general anaesthesia should be used.

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DR E. C. ELLETT: There are one or two matters I would like to speak to in this connection, one in regard to the production of local anaesthesia. For years I have used with much satisfaction the formula suggested by Dr. Bruns: one part of four per cent cocaine, one part of 1-1000 adrenalin, and eight parts saline. If that is injected sub-conjunctivally, it aids greatly in deep anaesthesia of the iris. In making an incision for an iridectomy, I would like to say a word in favor of the use of the Graefe knife as compared to the keratome. It is curious that after making the slight opening of the eye for an iridectomy, you may have an intraocular hemorrhage of such severity as to result in the loss of the eye, which is relatively more common after the cataract extraction, yet I have been so unfortunate as to have it once after a glaucoma. Dr. Parker's classification of glaucoma into anterior and posterior is interesting. If the obstruction is posterior, the flow of lymph is anterior, that is, through the spaces of Fontana and the canal of Schlemm, and the current of lymph going forward carries the lens and iris with it and you recognize such a case by the shallow anterior chamber. If the obstruction is anterior, what drainage of lymph takes place, takes place posteriorly, and the current is posterior, and the iris and lens are carried back with that current, and you recognize such a case by the deep anterior chamber. The cases of anterior filtration, which are the cases with the shallow anterior chamber, are best adapted to the trephine operation; whereas the case of posterior filtration, with deep anterior chambers, are best applied to an iridectomy, which it is infinitely easier to perform under these circumstances. Some years ago I ran through a number of rabbit eyes with an Elliott trephine operation, and at the end of eight weeks the trephine opening is usually so filled with connective tissue that you can not distinguish it from the rest of the sclera under the microscope. In the LaGrange operation you use the same instruments that you have always been using, the cataract knife, etc. In the Elliott operation you make your exposure in a new way. You dissect down and split the cornea in a way you never did before, and use an instrument you never used before, and it seems to me the technical difficulties are very much greater.

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DR. HERSCHELL EZELL: Personally, of all the operations that are performed for the relief of glaucoma, I prefer the operation for iridotasis. Of course iridectomy is here to stay and certain cases for example, as in acute glaucoma, it is the operation of choice. The LaGrange operation I do not believe is as effective as that of iridotasis.

Like our Chairman I believe that we can get along with local anesthesia in operating for glaucoma. In my experience cocaine anesthesia has proven satisfactory.

I don't think that it is so much a question of the operation, that is, the one of three operations referred to, that we should lay stress upon, as it is the way in which we do the operation. Use the operation that you do best. And in this connection I wish to emphasize practice on animal eyes before operating. By continued practice only do we get our best results in these as well as other operations.

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DR. JOHN GREEN, JR., St. Louis, Mo. Mr. Chairman: I don't know how many of you here are familiar with the so-called "Smith" incision in iridectomy for glaucoma. This incision, as I understand it, was devised by Lieutenant Colonel Henry Smith, the originator of the Smith Indian cataract operation. It seems to me to possess many advantages. You may all be familiar with this incision. I may be reciting a twice-told tale; but in discussion with a number of colleagues, I found that some of the gentlemen, at least, were not acquainted with it. The puncture is small with the Graefe knife in the sclera. The moment the point of the knife appears in the anterior chamber the handle is swung down so that the point of the knife is carried into the angle of the chamber. The knife is then advanced and the counter puncture made. Thus we insure a sclera incision close to the root of the iris. One of the advantages of this incision is that the blade of the knife is never very close to the plane of the lens, and this is of great advantage in the case of a very shallow chamber. Iridectomies made after such an incision are sure to be peripheral.

There are no classes of glaucoma cases more difficult to handle satisfactorily than congenital glaucomas. Repeated paracenteses up to the age of four or five, then an Elliott trephining, is probably the best plan offered in these cases.

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DR. HUBBARD, (Closing Discussion): Remember, there are two kinds of pain, as Dr. Wood said, —the pain due to cutting and the pain due to pulling, and when anything pulls on an iris the anaesthesia has to be awful good or the patient is going to turn his eye and if you have an instrument in such position that it can go into that eye when the patient turns it, you are lost; you pull our your iris forceps with a piece of soft lense matter on it, and you will have an iridocyclitis, and the patient will go to "Dr. Weeks," or somebody else for enucleation as a preventive of sympathetic ophthalmia.

As to filling in the trephine opening in glaucoma cases and normal eyes I was of the opinion that the opening is kept patent and filtration maintained by the increase in tension of glaucoma cases; and failed in normal eyes, such as your rabbits must have had, by the lack of this increase of tension.

Dr. Wood said, if I have interpreted him rightly, that he never saw a case in which the tension was not reduced at the time of operation.

DR. HILLIARD WOOD: I said, Doctor, that the mere opening of the eye reduced the tension practically to zero at the time that it was opened.

DR HUBBARD: I had an old glaucoma patient who came in some two or three months after I had advised operation. I did an Elliott trephine, evacuated the anterior chamber, did the partial iridectomy, and, with my fingers on the closed lid, after the operation, found that the eyeball was hard.

DR. WOOD: Did she have a hemorrhage?

DR. HUBBARD: No, sir, she had no hemorrhage.

DR. WOOD: Did you open the anterior chamber?

DR. HUBBARD: Absolutely, the aqueous ran out there before my eyes.

DR. WOOD: Why didn't that reduce the tension by that much?

DR. HUBBARD: That is the point I want to know. But I do know that I opened the anterior chamber; I do know that I got the iris, I do know that the iris was cut for I saw it on my forceps—and I saw the aqueous come out.

A MEMBER: You mean the tension was not reduced to zero?

DR. HUBBARD: The next day the tension was down to normal, because I saw it the next day.

A. MEMBER: How did you take that the next day?

DR. HUBBARD: With my fingers.

A. MEMBER: Why did you take the tension right after the operation?

DR. HUBBARD: Because the globe didn't look any softer than it had. You usually get a collapse of the cornea; you get some indication that the eye is soft, and this eye did not have any indication. I went home and worried all night over the thing.

In speaking of cataract I did not mean that form which develops after the trephine operation, but that form which is due to injury of the lens after doing your iridectomy; sometimes you may be tempted to put your iris repositor in the anterior chamber, then you get the same form of traumatic cataract you may get when doing any form of iridectomy. It will not be one of the degenerative forms of cataract.

# THE EFFECT OF THE YEAST VITAMIN IN MARASMUS.

R. H. Perry, M. D., Nashville.

Various systems of artificial infant feeding have in view the modification of cows' milk so that the percentage of fat, carbohydrate, proteid, and mineral salts approximate in percentage these same elements in woman's milk. Since the discovery of vitamines we know that, in addition to the above constituents, other elements must necessariliy be present in the milk. These substances are called necessary food factors and are known as **fat-soluble A, water-soluble B, or anti-neuritic vitamin,** and **antiscorbutic C.** They are remarkable in that relatively small amounts are necessary to protect an individual from the development of the so-called "deficiency diseases." But even this small amount necessary may not be present in all foods, as witnessed in babies who develop scurvy from food in which the antiscorbitic vitamin is lacking.

When cows' milk is diluted for infant feeding it necessarily must follow that the vitamin content is reduced, as well as the percentage of the other constituents. Milk, unless fat free or boiled, contains the three vitamines. Where milk is diluted for infant feeding the vitamin content is increased by the addition of vegetable soup or cereal diluents and orange juice.

The effect of adding extra vitamin to the artificial feeding of infants has been tried with the idea of stimulating growth. Thus Eddy[1] was able to bring about marked immediate improvement and the ultimate recovery of a number of infants of the marasmic type by merely increasing the "B" vitamin content of their food. In these cases the vitamin was obtained from the pancreas of the sheep and was administered mixed with cereal, or the crude extract was mixed with the milk. Again Daniels and Byfield[2] have recently confirmed the effects of increased "B" vitamin in infant growth. The wheat embryo and a specially prepared vegetable soup were the sources of the anti-neuritic vitamin in their cases. Hess[3] experimenting with yeast found that this substance had little or no value as an antiscorbutic, but possessed virtue as a stimulant to growth, when added to milk in the form of the fluid autolyzed yeast or given to older children as a dessicated powder.

Daniels and Byfield conclude from the fact that the artificially fed infant requires a larger amount of food than the breast-fed infant that the diluted cows' milk is deficient in antineuritic vitamin, and that failure to gain in young infants and young children is often the result of such deficiency.

With the above idea in mind I have recently tried the addition of yeast, which is especially rich in antineuritic vitamin, to the food of twelve marantic babies. Yeast was selected on account of its vitamin content, and its addition to the food moreover involved little preparation as is the case when wheat embryo, vegetable soup, or pancreatic extract are used. The yeast used was the compressed yeast cake, which was dissolved in water and added to the day's feedings. At first one-fourth of a cake a day was given until it was determined that no untoward effects resulted and the amount was gradually increased until three-fourths of a cake or in some cases a cake was given in the twenty-four hour feedings. There is no method of determining the exact dosage of extra-vitamin.

The infants on whom yeast feedings were tried represented the usual cases of institutional marasmus. There were no normal babies in this series of cases. There were present at all times during the tests a sufficient number of marantic infants not receiving yeast to use as controls. The infants varied in age from five to eleven months, and in none, including the oldest, was the weight over twelve pounds. Their feedings consisted principally of pasteurized milk dilutions modified to suit each individual baby. Dried milk was used in three of the cases. The formulas were changed when necessity demanded it.

The period of yeast administration varied from sixty to one hundred and fifty days. The yeast was not always fed continually. Occasionally, on account of abdominal distension and loose stools, it would have to be discontinued. Again, in some infants is was given for two weeks and then discontinued, to be resumed in two weeks. This was done with the idea of comparing the weight curve during the period when yeast was fed and when it was not given.

Those who have reported favorable results from adding extra vitamin, especially pancreatic extract, wheat embryo, etc., say that the infants' appetite is increased and growth results. This they attribute to stimulation of the digestive glands. On the infants on whom yeast was tried little if any increase was noted in the appetite; on the other hand the yeast did not interfere with the taking of food.

As to the effect of yeast upon growth: In cases receiving interrupted yeast feedings no change in the weight curve was noted when yeast was given and when it was left off. None of the yeast cases showed any gain in weight over the control cases, who were on similar diets. As a matter of interest it may be mentioned that one of the infants receiving yeast developed scurvy, thus confirming Hess' observation on the ineffectiveness of yeast as an antiscrobutic.

Only one infant showed any marked improvement while taking yeast. In this case the yeast was given at interrupted intervals for four months. During the period when yeast was not given the weight increased the same as when it was fed. There are those who would argue that in this case vitamin was stored up during the period of administration to tide over the period during which it was not given. That such is not the case is shown by the fact that the weight of the control cases increased in many instances without the addition of yeast in their feedings.

The ineffectiveness of yeast as a promoter of growth corresponds to the experience of Ladd[4] and Daniels[5], both of whom have reported negative results. Moreover the fact that loose stools accompany its use, counteracts any virtue it may possess.

In addition to being a promoter of growth yeast has been highly advertised as a cure for furunculosis. Two of the infants in this series developed furunculosis while yeast was being given. Four others had furunculosis when the tests began, and in addition six infants not included in the series being tested for growth, but who had furunculosis, were fed yeast. In none were the results as good as in cases treated along the usual lines.

### Conclusions.

1. There is no royal road to success in the artificial feeding of marantic infants, and yeast, in spite of its richness in the anti-neuritic vitamin, is not a panacea in these cases.

2. In 12 cases of furunculosis there was no improvement from feeding yeast.

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1. Eddy and Roper; Amer. Jour. Dis. Child. 1917, XIV, 189.

2. Daniels and Byfield. Amer. Jour. Dis. Child. 1919, XVIII, 546.

3. Hess; Amer. Jour. Dis. Child. 1917, XIII, 98.

4. Ladd; Arch. Ped., Dec. 1921, p. 774.

5. Daniels; Amer. Jour. Dis. Child; 1922, XXIII, 40.

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## RADIUM THERAPY.

### Preliminary Report of 250 Cases.

By William D. Haggard, M. D., and Carl R. Crutchfield, M. D.,
Nashville.

This preliminary report is based upon an analysis of 465 radium applications given to 250 patients since 1917, up to March 1, 1922. Prior to October 1917, we used radium in 10 cases of rather advanced malignancy and were so pleased with the immediate results that we took up the study of its use in cancer and various other pathological conditions.

Of these reported cases, 145 were carcinoma, 24 sarcoma, and 71 benign lesions. Of the 169 malignancies, 111 are living, 42 are dead, and from 16 no report could be obtained. Of the 24 sarcomata of various portions of the body, 14 are living. Of the benign group, all are living except 2 inoperable toxic goiters in which radium therapy was used tentatively and as a last but unavailing resort, and the great majority are completely cured.

Of the benign lesions, the most interesting and satisfactory group were the fibroid tumors of the uterus, which numbered 33. There were 17 skin lesions and 12 clinically precancerous lesions of the cervix, bladder, urethra, and mouth.

The most striking result was in the diminition of an enlarged thymus shown by the x-ray in an infant one year of age, who was suffering acutely from stridor, "crowing" respiration, and blueness. It corresponded to the clinical entity of the so-called status lymphaticus, and the baby, though healthy looking, at times appeared to be in a desperate condition from suffocation. After radium application it gradually improved and in a month's time was completely and permanently relieved.

This agent has been used in connection with our surgical practice and a great deal of discrimination has been used in the selection of cases as to whether surgery was indicated or whether the case was more amenable to radium alone or to x-ray. Practically all of the malignant cases that have been operated upon have also had the benefit of irradiation with radium or x-ray or both. These have very greatly increased the end results. In 1920 Dr. W. O. Floyd who is associated with us, reported 230 cases of deep seated malignancies in our clinic. Of this number, only 20 had radium alone. The 169 cases here reported have had radium alone or in connection with operation and x-ray.

Enough time has now elapsed since the discovery of radium to enable us to evaluate the efficiency of radium in certain medical and surgical ailments and to present a resume of some of its achievements. Some knowledge of the physical action of radium is necessary for an intelligent understanding of its therapeutic use.

Radium is one of the rarest elements. The available world supply is less than four ounces. It differs from the other alkali earths, as barium and strontium, to which it is closely related by its power of radioactivity. By radioactivity we mean the property of giving out spontaneous rays which will affect a photographic plate, cause fluorescence in certain substances and render air a conductor of electricity by ionizing it. Radium gives off three kinds of rays: alpha, beta and gamma.

The alpha particles are negative charges of gross matter ejected from the heavy radium action and are intercepted by any kind of screen or container in which the radium happens to be inclosed. They are extremely important to the physicist but we have nothing to do with them in medicine. The rays used in treating medical and surgical conditions are the beta and gamma rays. These rays are not direct emanations from the radium itself, but are given off by a very active gas which is being formed continually by radium and which continually accumulates in it at a certain definite, measurable rate. The effectiveness of radium in reality depends upon the production and the rapid breaking down of this gas as it further disintegrates into the next product below it in the scale. This radium production gas is the so-called emantions of Rutherford. This is collected and sealed in fine capillary glass tubes and is as effective therapeutically as the radium element.

Whether we use radium or emanations the therapeutic results are the same. A millecurie is the equivalent emanation strength of a milligram of radium, so named in honor of Madame Curie.

Two available rays, beta and gamma, are given off by the emanation whether used in radium or separated from it. The beta rays are more irritating and less penetrating than the gamma rays. They are used for superficial lesions where there is a fungating area which it may be of advantage to destroy or strike hard blows while promoting the absorptions of the underlying disease. They are readily modified or cut off by interposing silver, brass or lead screens of one or more millimeters in thickness. Where the neoplasm lies deep in the tissues under the sound surface, as in the neck, chest or in the abdomen, it is important to cut off many of these beta rays and use the harder and more penetrating gamma rays, which are much less in quantity but far more penetrating and not so irritating. The gamma rays are similar but are not identical with the hard penetrating x-ray. They are much more penetrating than the x-ray, as they will, according to Kelly, pass through ten or twelve inches of lead and even influence electroscopes after passing through two buildings and a hundred feet of space. They have somewhat different properties, as is evidenced by treating x-ray dermatitis with good results with radium.

The dosage and technic of using radium is a matter of experience and skill. The general rule is to give the pathological tissue enough radiation to destroy it without doing permanent injury to the healthy surrounding tissue. This is accomplished by what is commonly known as cross firing so that the rays cross in the pathological tissue while arriving through many portals of entry. Experience too, has had to teach us not only the amount to use, but the duration of the application in each case as well as when it is wise and safe to repeat it.

The whole question of the influence of radium upon diseased or new formed tissue hinges upon the fact that these tissues are more susceptible to rays than are the surrounding healthy tisues. Most malignant cells are two to five times more susceptible to the destructive action of the rays than normal tissue. It is thus possible to produce retrogression of malignant growths and in the lymphatic glands some distance from the skin without destroying the skin or mucous membrane.

The rays given off by radium and x-ray act primarily on the nuclei of the cell and inhibit their power of proliferation before the vitality of the cell is impaired. Embryonic cells and those undergoing active proliferation are the most susceptible. A small amount of radium stimulates the cells, but more retards the malignant growths. They become less malignant although they may not diminish in size or disappear. By further increasing the quantity of radiation, the injury becomes more pronounced, the cells are completely destroyed, leaving the healthier cells intact and so slightly injured that they will recover. The rays produce a change in the blood vessels with a degeneration of the endothelial cells in the intima. The lumen of the vessels retract and the tumor cannot obtain nourishment. The lymphatics undergo sclerosis thus reducing both the lymph nodes and vessels which in turn inhibit metastasis. An inoperable cancerous mass after being rayed changes its type becoming more scirrhous and less malignant. It is not known whether the checking of the growth and improvement of the general health of the patient is due entirely to the histological changes in the tissue. It has been held that radium has a secondary biologic property. The rays split up the cancer cells which are absorbed giving rise to the formation of protective ferments or substances which antagonize the progress of the disease.

While the introduction of radio-active substances has been the one great advancement in the treatment of cancer in this century, the rational and efficient means of attaining the maximum benefit is by the cooperation of the practitioner, surgeon, radiologist and roentgenologist. The practitioner has the advantage of seeing cases earlier and it is imperative that he recognise the conditions early and advise appropriate treatment as soon as the diagnosis is established. The successful permanent results are directly proportionate to the early recognition of the disease and the prompt institution of appropriate treatment. Then again the family physician must look after the patient between the treatments and over a long period of time and by keeping up the patient's general resistance and encouraging him to keep up his morale he can do very much to facilitiate his patient's recovery. This together with the combination of selective surgery, x-ray and radium treatments will give the largest per cent. of so-called five years cures.

Radium should be applied directly on the lesion and x-ray on the surrounding tissues and offending draining lymphatics with massive Coolidge tube radiation. By this plan maximum good is accomplished in the shortest time. It is always a good plan to make radiograms of the chest before attempting to treat rather advanced lesions of the breast, genitals and alimentary canals. By this means any mediastinal or chest or possibly liver metastasis can be ascertained and the method of treatment directed properly and a more accurate idea of the ultimate progress of the case will be attained.

The following diseases are most susceptible and can be most benefitted by proper radium therapy:-

**Sarcoma**: The sarcoma give the best immediate results. This, hitherto, utterly distressing and hopeless malady from the standpoint of medicine and surgery melts away with startingly rapidity under massive radiations. The lympho-sarcomata respond best, the spindle cell sarcomata next, and the round cell variety is less amenable to treatment. Melanosarcoma gives poor results with any form of therapy and radium in this condition is only palliative. In three cases sarcomata of the naso-pharynx, as large as half fists and which were interfering materially with the respiration and swallowing, disappeared completely in three or four weeks respectively under heavy radium therapy. These cases gained their original weight and returned to their former occupations. One, however, at the end of ten months suddenly developed general metastasis and died in a few weeks. His life was made comfortable and prolonged six months even though it did not cure him. The other cases are still clinically well at the end of 10 and 14 months, respectively. We believe if we can use radium before metastasis takes place many of these could be symptomatically cured over a long period of time. The treatment of the osteo-sarcoma should be combined with surgery when possible. One such case had this combined treatment with marked temporary improvement. We have one case of melano-sarcoma under observation that has been clinically well for 21 months since radium treatment. Twenty-four sarcomata have been treated and all are living but 8. Two have not been heard from. Sarcomata as a general rule do equally well if not better with radiation than with surgery. Recurring sarcomata following operation should certainly not be reoperated upon until radium has been given a thorough trial. A remarkable case of this character is shown in Figs. I and II. This boy was 12 years of age and presented an enormous, rather soft, but not fluctuant tumor involving the right side of the neck and interfering with the respiration so that he was unable to sleep except when in a sitting posture. The history was that a tumor, the size of an adult fist, was removed by Dr. Gewin of Birmingham, Ala., in Oct. 1916, with a microscopic diagnosis of sarcoma. Following this he had one 48 hour radium treatment, but developed erysipelas 4 1-2 weeks later and never returned for any further radiation. Eight months after the operation he developed a small pea sized nodule above right clavicle which increased very slowly in size up until July 1919. It then began to grow rapidly in size up until July 1920. X-ray examination of the chest was negative for any metastasis, so radium and x-ray therapy were advised and instituted. Topical applications were given over the entire tumor with radium at a distance of 1 inch, delivering 400 to 500 milligram hours to each area through a filter of one millimeter brass and one millimeter rubber. These were supplemented by heavy Coolidge radiation over neck and draining lymphatics of the chest. Radium was given at two months intervals in decreasing doses until five treatments were given and heavy Coolidge radiation were given over chest and neck at monthly intervals for six months. Three weeks after instituted treatment, the tumor decreased half the original size, regained voice and gained 10 pounds in weight and felt much better. Then the tumor began to increase in size, and voice became husky again. After second treatment tumor went down to 3-4 original size and then over a period of 4 months gradually disappeared, leaving a fibrous tissue stroma at the original site of the tumor. Since that time has been well in every way and voice is normal at times but becomes husky again if takes the least cold. 20 months after instituting treatment patient appears to be clinically cured, but is examined at regular intervals to make assurance doubly sure.

Hodgins' disease is reported by Kelly to be often curable when taken early and he claims several cases of more than five years duration. Leukemia often responds quickly to radium therapy alone. The best results, however, are obtained by using radium until the blood picture is normal and then resort to a splenectomy in the favorable cases.

**Skin cancer.**—At the present time radium is the method of choice in treating superficial lesions and fully 85 to 95 per cent. of cases are permanently cured when radium is applied early and skillfully to these conditions. If superficial, they usually take only one or two treatments to produce a retrogression. In the treatment of this condition both beta and gamma rays are employed. The lesion heals up, leaving a soft, white, pliant scar with the minimum deformity and the best possible cosmetic results. We have used it successfully in 27 superficial cases, 27 improved and have had only one recurrence.

Cancer of the lip when springing from the skin surface is a radium case. Springing from the mucous membrane and very early, good results are reported by combining radium and surgery with dissection of the glands of the neck, followed by x-ray over the glands of the neck and chest. In all cases where the presence and extent of metastasis is uncertain a radical operation followed by post radiation is the method of choice. Five patients with inoperable cancer of the lip have been given 14 series of radium treatments in all. One has died but 4 are living. We have one patient with local recurrence following excision of car-

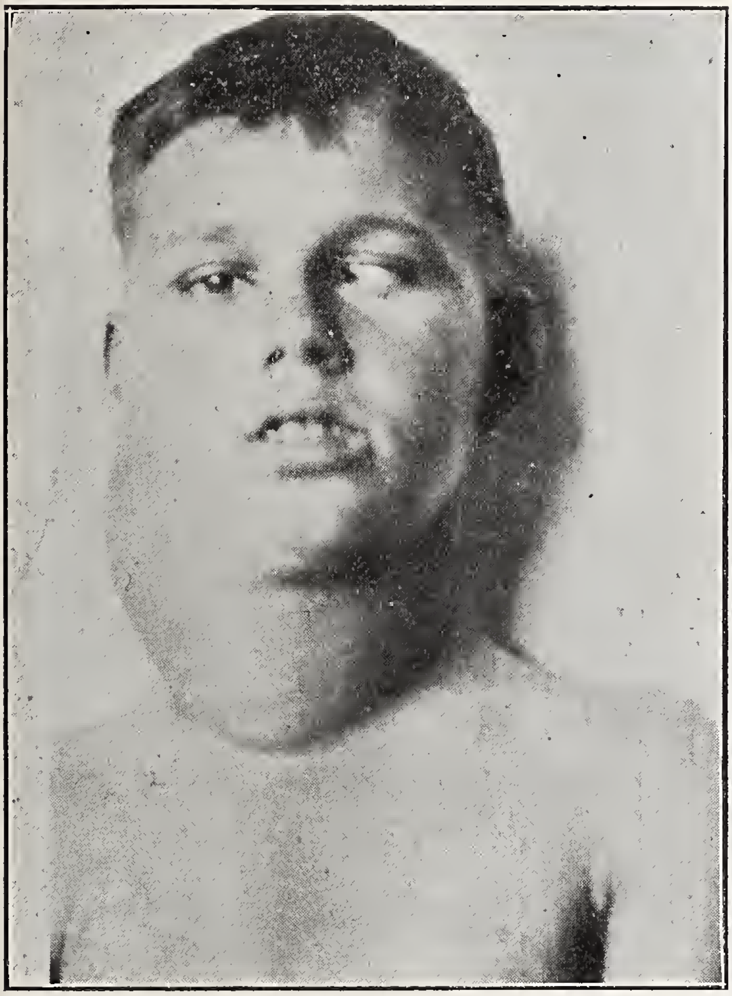

Fig. I.
Sarcoma neck recurring after 2 years; then growing 2 years, before treatment, nearly 2 years ago.

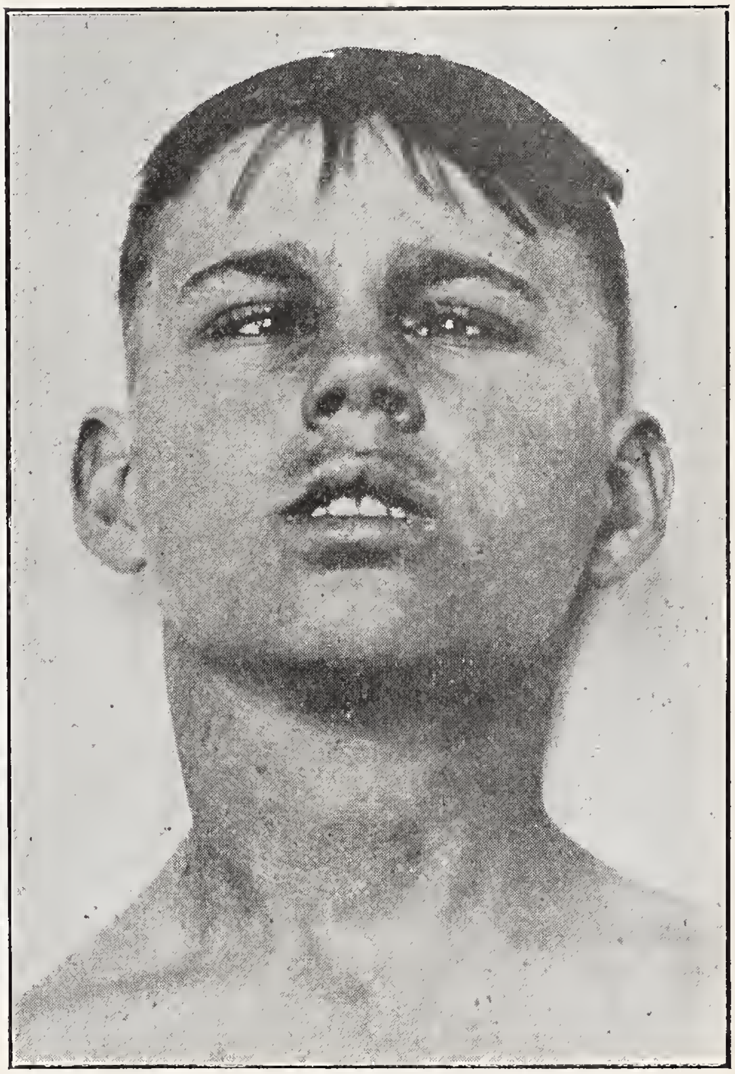

Fig. II.
Same as Fig. I, nearly 2 years after 5 radium applications and six Coolidge tube irradiations.

cinoma of upper lip apparently well at the end of 24 months following radium treatments alone. (See Figs V and VI).

In cancer of breast, radium is valuable in cleaning up skin recurrences. In the treatment of cancer of the breast radiation over tumor and all lymphatics ten days or two weeks prior to radical operation is wiser and safer than radiation alone. Only in terminal cases is radium employed, and then for its palliative effect. With very extensive metastasis radiation is contra-indicated, as it may only stimulate the growth and do no good. On the other hand, in the local recurrence of the lenticular type, or in a massive nodule on the cartilage or bone, or a nodule in the maxilla, or sometimes in those above the clavicle, radium therapy brings about a happy result with the dissipation of the disease. In 4 cases of large supraclavicular glands, 3 recurrences and one at the time of operation, 2 disappeared entirely and patients are clinically cured, and one other improved and one other patient did not report. Post operative radiation following operation for 6 months is the best prophylaxis against recurrence. Pre-operative radiograms of the chest will often prevent a useless operation if they show large intrathoracic glands which can best be treated by appropriate deep Coolidge radiation or massive radium treatment.

**Cancer of the Cervix.**—Here radium has done its best work in hopeless inoperable cancer of the cervix or recurrences after operation. It even gives apparent local and clinical cures in from 1-3 to 1-4 of the cases. The local effect is striking. The bleeding disappears in about two weeks. The offensive discharge is lessened and becomes odorless. The cancerous mass contracts and continues to diminish. In some cases it disappears entirely in two months and the cervix appears to have

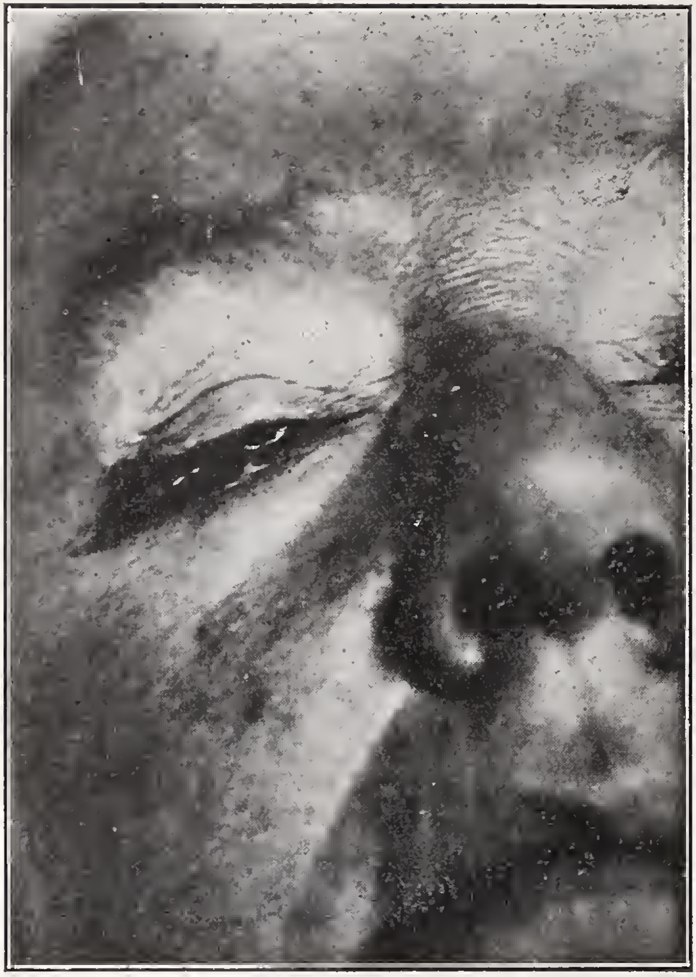

Fig. III.
Epithelioma outer canthus and lower lid of right eye. Rodent ulcer under right eye, 13 years. Increased rapidity in size past year.

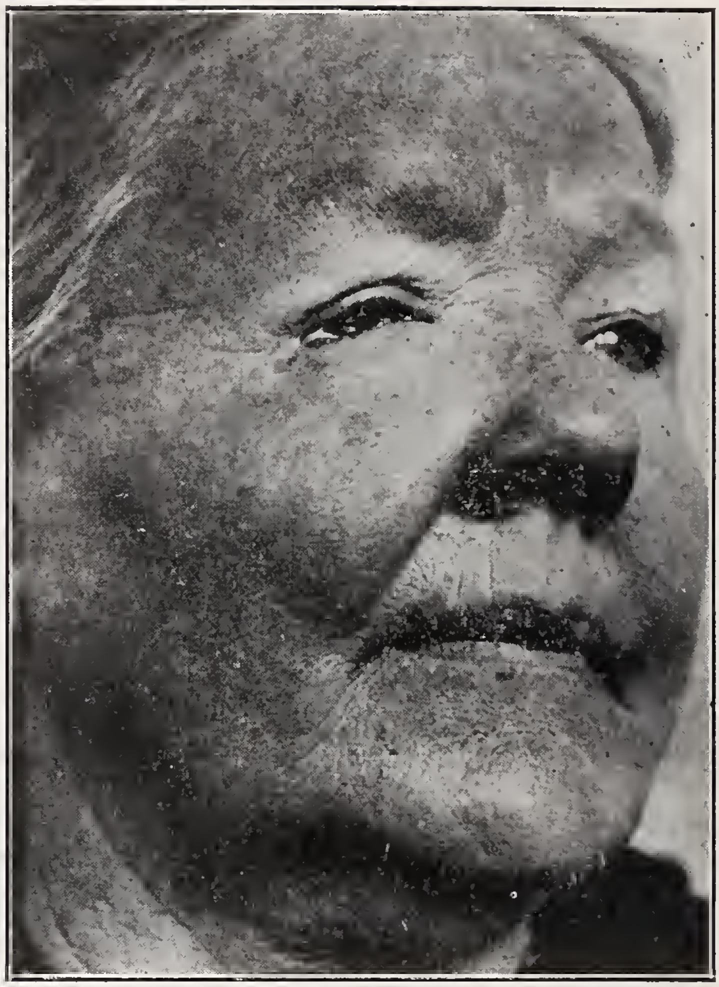

Fig. IV.
Same as Fig. III. 11 months after 3 radium treatments. Entirely healed, soft, pliant scar with much sympathetic and functional relief.

been amputated. The patient's general health improves. They gain weight and their morale improves. Even those who are toxic or taking morphine are almost transformed. If there is extensive infiltration and induration of the broad ligaments and metastasis it is only palliative. If radium did nothing more than this it would have earned its place in medicine as a boon to suffering womankind. It does more than that, however. A conservative estimate is that 25 per cent of all cases have clinical cures extending over 5 years. It is the treatment par excellence and we believe is better than surgery in most cases. Even in the good operative risk, it is probably the best treatment if the patient can be watched over a long period of time. The electric cautery and cold iron as an aid to radium therapy are rarely justifiable except to remove large masses of malignant tissue. They usually do just as well without it. We give radium about every two months, and massive Coolidge radiation front and back above the drainage lymphatics monthly over a period of six months, if the general condition of the patient will stand it. Then keep them under observation for many months. The largest dose of radium is given at the first treatment and each subsequent treatment is smaller. 50 mg. of radium is introduced into the cavity of the uterus and 50 mg. additional in needles are inserted into cervical tissue and into the bases of the broad ligaments. This is kept in place from 24 to 48 hours. The type and duration of each treatment is determined by the individual case. In advanced cases where danger of vesico-vaginal fistulae or recto-vaginal fistulae are imminent caution must be exercised. Recurrent carcinoma of the vagina or pelvis often responds to treatment, but if a second recurrence takes place they are less amenable to future treatment. In all we have had 64 cases of carcinoma of cervix, uterus and vagina. The first case treated with radium by us is well and free from recurrence four years after her first treatment. She had five applications.

On the 5 recurrent cases treated prior to March 1918, none were permanently cured.

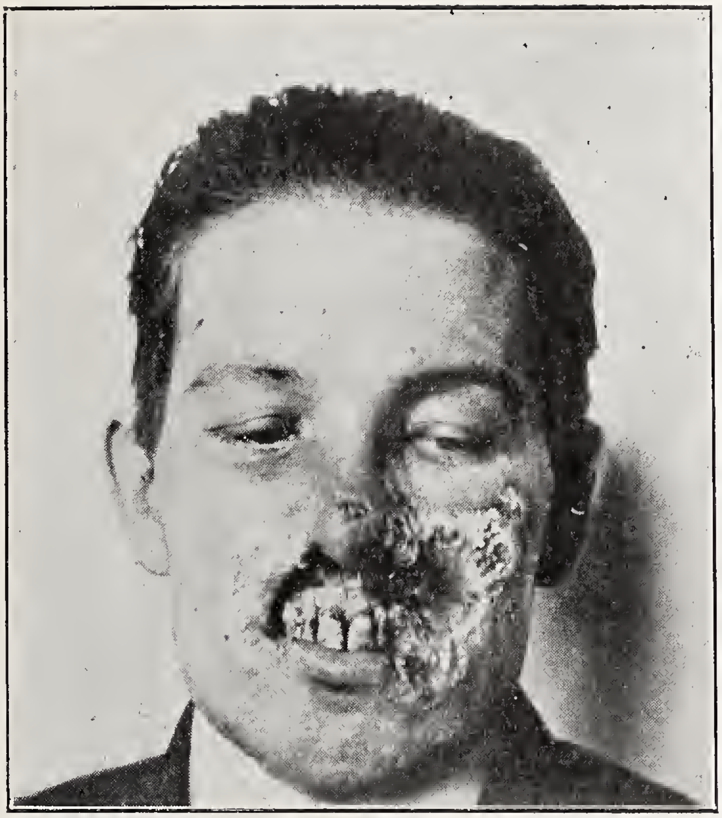

Fig. V.
Recurrent inoperable extensive epithelioma of the face three months after removal of upper lip for ulcerative infiltrating epithelioma.

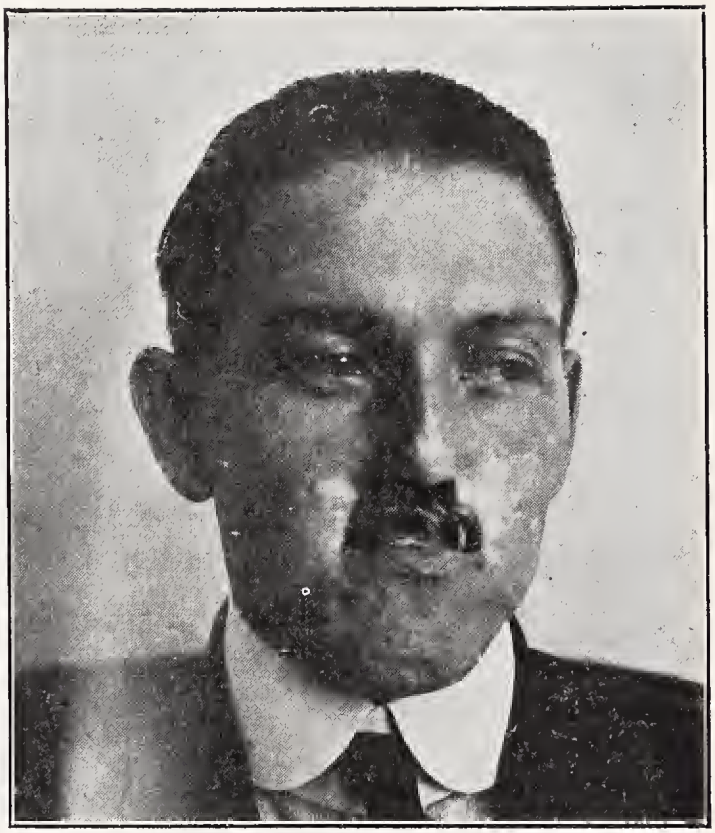

Fig. VI.
Same patient at Fig. V. two years after radiation. Clinically cured at the present time. Plastic operation to be done at a later date.

Of the remaining ten recurrent cases, 2 are dead, 3 have not been heard from and 5 are still under observation.

Of the 49 remaining cases:

35 are known to be living.
6 have not been heard from.
18 are clinically much improved and apparently cured.
17 cases are under observation or treatment at the present time.
7 other cases were seen but were too far advanced for hope of relief, and were refused treatment.
2 of these had vesico-vaginal fistulae.
2 of these had recto-vaginal fistulae.
1 had liver metastasis.
1 refused treatment.
1 had very extensive metastasis in pelvis and hemoglobin and had bled until hemoglobin was 11 per cent (Sahli).

All others were given radium if only to check hemorrhage or for palliation. Only one in this group was operable, but, as she was 66 years of age and a poor surgical risk, radium was given and now she is clincally symptomless after 20 months.

One can never predict just what effect radium will have on any case. One patient, age 50, multipara, had cauterization of cervix followed by pan-hysterectomy for carcinoma of the cervix in March 1915. She had a recurrence in the vagina with bleeding in March 1919. She took two radium treatments that year and since that time has been all right and has had no return of symptoms, reporting that she is as well as usual.

Cancer of body of uterus is a surgical condition at the present time, unless contra-indications exist, as bad risks, age, diabetes, etc. It may then be treated with radium with palliation. Two case have been treated by us with promising results. One patient 80 years of age has no symptoms after two years following one radium treatment.

Cancer of the rectum is a condition not treated satisfactoriliy by radium alone. If operable, it should be rayed if low and then removed. If inoperable, radium is palliative only, but should be preceded by colostomy so as to prevent constant irritation of the part, and at the same time any liver metastasis can be determined and if this is present, treatment would not only be useless but would cause unnecessary suffering. Two patients with carcinoma of the rectum still confined to rectal wall and low down just internal to sphincter had radium treatment followed by Harrison Cripps operation and had a post-operative radiation and have fairly good function and one is free from recurrences at the end of 16 months. One operable case refused operation, took radium and is symptomatically well after more than two years. Ten other cases were treated, but six are known to be dead and 3 have not reported. One case with recurrent cancer of rectal margin following operation was turned down for operation 7 years ago. He was treated with radium at the time by Kelly and today is symptomatically well.

Cancer of the prostate may be removed if early and radium tubes buried at time of operation. If inoperable, it may be cross fired by the use of needles via perineum or via rectum and urethra. One such case has been stationary for two years and has been working daily. Another is under treatment and has been stationary for nine months.

In carcinoma of throat and tongue, needles are very satisfactory and usually give good primary results, but metastasis often occurs early. Of six cancer of the tongue, four are living and doing well, two have died with metastasis elsewhere with no evidence of return locally and were relieved for six months to one year.

The non-malignant conditions treated with radium give very satisfactory permanent results.

(1). The treatment of port wine stains give very promising results if continued cautiously over a long period of time. Three cases have ben treated with promising results.

(2) In birth marks of the angiomatous type radium is doing remarkable work almost entirely removing these conditions from the surgical field. Six cases had entirely satisfactory results.

(3) Radium is used successfully in about 40 per cent. of fibroid tumors of uterus. The tumor should be not larger than 3 months pregnancy and not pedunculated and with no pelvic infection or evidence of malignancy. 33 cases were treated. Bleering was controlled in all and none had any increase of the tumor.

(4) For idiopathic uterine hemorrhage, especially about the menopause, it is almost a specific provided definite pathology can be ruled out. One case was cured by one treatment, a nullipara age 35, had had 6 currettages and 6 x-ray treatments over one year without benefit. One well screened 24-hour radium treatment gave absolute cure and menses are now normal.

Other conditions in which radium has been successfully used by us are in so-called precancerous lesions, indolent cervical ulcers 2; papillomas of bladder 1 keloid 5, rodent ulcer 1, inoperable toxic goiters 3, bleeding urethral caruncle 2, leucoplacia, granulomata of gum, lupus, atrophic rhinitis, troublesome warts, condylomata and enlarged thymus glands in children.

**Conclusions.**—(1) Early accurate diagnosis and early appropriate treatment with prolonged and careful obsservation and active cooperation between surgeon, family physician, radiologist and roentgenologist are necessary for successful radium therapy of malignancy.

(2). Radium is a valuable adjunct to surgery in the treatment of operable as well as inoperable malignant tumors or growths. Sarcoma best, carcinoma of cervix next, and epithelioma, lymphadenoma, carcinoma of lip, tonsil, esophagus, antrum, rectum and prostate.

(3). Radium used intelligently in conjunction with modern surgery has proven of permanent value in the treatment of fibroid tumors of the uterus and idiopathic uterine bleeding.

(4). It has proven of increasing value in the treatment of certain superficial diseases of the skin and mucous membrane as well as many other pathological conditions as lichen, planus, lupus, erythematosis, cicartrices, painful affections of the skin, papillomata, angiomata, pigmented naevi, rodent ulcers, bleeding urethral caruncle, lymphatic leukemia and in enlarged thymus glands in children.

## THE THIRD STAGE OF LABOR.

By W. B. Anderson, M. D.,
Nashville.

Quoting from J. O. Polak, of Brooklyn, in an article in the A. M. A. Journal of June 25, 1921, we take the following statement:

"The mortality of practically all diseases treated with medicine or surgery has been lowered except that from child-birth," which should be the one and only physiological condition to come under our care.

According to Polak's statistics, the mortality of child-birth is second only to tuberculosis. One woman dies for every two hundred and five babies born, and 50 per cent of these deaths are due to sepsis.

More than sixty-one per cent of all gynecologic surgery is due to poor obstetric practice. The mortality of puerperal infection and invalidism in women following child-birth remains practically the same as in 1900.

Quoting Rudolph Holmes, of Chicago,, from an article in the American Journal of Obstetrics and Gynecology of September 21, 1921: "Eight thousand four hundred and fifty-three women died from effects of child-birth in 1910. Mortality of both mothers and babies has changed but little in a century."

This is appalling, and when one reads these statistics and thinks of such mortality, and post partum invalidism, he is obliged to receive each case of confinement with fear and trembling. De Lee says that more deaths occur from mistakes made during the third stage of labor than in both the first and second stages combined.

Technically speaking, the third stage of labor begins with the expulsion of the foetus and ends with the complete expulsion of the placenta, which is about thirty or forty minutes. But practically speaking, it does not end until the doctor can safely leave his patient, which is about one hour, during which time the doctor examines his patient, looking carefully after her physical condition and repairing whatever damage has been done during the second stage. The amount of repair needed and the condition of the patient depend entirely on what has happened during the first and second stages, especially the second stage, which begins with the dilatation of the cervix and ends with expulsion of the child. But it is the carelessness of the physician in failing to look for, and repair such damage; and in not noting the physical condition of his patient, or ignorance on his part that prompted De Lee to say that more deaths occurred from mistakes made in the third stage than in the first and second stages combined.

My observation from a limited experience does not carry with it such statistics as here referred to by Polak, Holmes, De Lee and others. I believe better obstetrics is being done than ever before, and that it is more appreciated, mainly because it is being made a branch of medicine separate and apart from general practice, general surgery and other branches of medicine.

According to Polak's statistics the mortality of obstetrics has changed very little in twenty years; and forceps and other obstetrical instruments similar to those now in use, were used more than two hundred years ago; yet I repeat that with a better knowledge of asepsis and technique in general, obstetric mortality of both mothers and babies should be lower and the health and strength of child-bearing mothers should be better.

Some of us remember the time when there was in almost every community an ignorant midwife, who delivered more babies than the doctor of the same community, and many a doctor did very little more for his patient than the midwife. I mean by that, his disregard for cleanliness, lack of knowledge of technique, carelessness in looking for and repairing damage done in delivery made him of little more importance to his patient than the midwife; and those of us who have followed up the work of these well-meaning midwives and careless physicians have seen the after results of many cases of sepsis and lacerations left unattended.

To do good obstetrics one must be able to do and be prepared to do surgery. At least he must be able to repair damage done in the ordinary delivery. All the damage is done in the first and second stages, but it is in the third or follow-up stage that the repair of such damage must be made. When you consider the fact that the obstetrician is constantly facing the same dangers that the surgeon faces, that is, infection, hemorrhage and shock, and that he has the responsibility of two lives, instead of one, we can readily see why the obstetrician should keep familiar with surgical indications and technique.

The most frequent indication for surgery I meet is damage to the soft parts, which can be easily overlooked if one prefers not to see it. Statistics on percentage of number and extent of lacerations vary.

The term lacerations of the perineum as usually employed is anatomically incorrect, since it includes the entire vaginal floor, perineum and rectum. About sixty per cent of deliveries have lacerations of the first degree, where only the skin and mucous membrane are involved. About twenty-five per cent have lacerations of the second degree, where the tear is deeper, but the sphincter muscle is not exposed. About ten per cent have lacerations of the third degree, where the sphincter fibres are divided; and usually such lacerations extend higher up in the vaginal floor. Such a tear is deplorable and should be repaired as soon as the patient can be suitably prepared.

If the rectal wall is involved, it should be sutured first from above downward, placing sutures about one-fourth inch apart and tying on the rectal side; then placing one or two sutures well back of the margin of the tear, including fibers of the sphincter muscle, leaving them to tie later. Then going back to the highest point of tear in vaginal floor, suturing and tying as you proceed downward and outward. These sutures should be placed well beyond the margin of the tear and directed downward and outward to the depth of the tear, and upon opposite side in a similar parallel line with the marginal tear of the perineal skin. An extra suture, placed further back from margin of tear and inserted deeply into the tissues about the junction of the perineal skin and vaginal mucous membrane, has a tendency to draw closer together the fibers of the pubococcygeal muscle, better coapting the ends of the fibers of the transversus perinei muscle, besides acting as a retention suture; and with the sphincter suture should be tied last.

As to laceration of the cervix, a repair should not be attempted except to stay a bleeding point unless you are working in a hospital and under favorable circumstances. If attempted, it should be drawn down with volsellum forceps so as to see the full length of tear, and beginning high up, using interrupted sutures placed one-fourth inch apart. Number three catgut on a large curved needle may be used for all sutures. Instruments needed in such surgery are a needle holder, tissue forceps, volsellum forceps, hemostats, large curved needles, round and cutting edge, number three catgut, and scissors.

It is a certain fact that if less pituitrin were used in the second stage of labor, and more in the third stage, there would be less damage to repair, and the patient's general condition would be better. Pituitrin is a splendid help when indicated in the second stage, to both patient and physician when properly used, but a dangerous remedy in the hands of a person ignorant of its use and abuse. When used in the second stage, it should be given in five minim doses hypodermatically, at intervals of thirty to forty minutes, and this only when you have ample dilatation and no contra-indications, such as high blood pressure, symptoms of eclampsia, etc. But in the third stage is where pituitrin properly belongs. Here it may be given in one half cc to one cc doses and has the advantage over ergot in dispelling the placenta, because of its clonic contractile power, while that of ergot is of the tonic type, which makes it, ergot, a very safe dose to give when you are leaving your patient, given in one drachm doses by mouth, ergotole being the favorite preparation.

The use of forceps in the second stage, while a necessity in many cases, adds to the damage and care in the third stages. Forceps delivery is a surgical procedure and must be carried out under surgical principles; otherwise it is hazardous, and adds greatly to the dangers of the third stage.

As soon as possible after the foetus is delivered, the mother's and baby's general condition should be looked into, and if found good, the umbilical cord is tied with a tape about one-fourth inch from the navel and severed about one and a half or two inches from naval, leaving the placental end not tied, unless bleeding is prolonged. Then a thorough examination should be made for damage to the soft parts, first attention being paid to bleeding points. One may take for granted that all bleeding is from uterine contractions when it may in fact be from a bleeding point in a lacerated cervix or from a deep tear of the perineum.

There is some difference of opinion as to the best time to repair damage to the soft parts. It is all right to repair a perinenm before delivery of the placenta, with the placenta brought down far enough to plug the os uteri and dam back the blood, but I believe it is better to deliver the placenta and get contractions started, and if you prefer, to place a tampon of cotton or gauze in the vagina, held by a tape hemostat or dressing forceps.

There is another difference of opinion here, as to how long one should wait for the delivery of the placenta. I doubt if it matters much whether the placenta is delivered in ten minutes or forty minutes, provided proper tactics are used in its delivery. With the use of one-half to one c. c. of pituitrin after expulsion of the foetus, the placenta will be spontaneously delivered in less than thirty minutes in a majority of cases. At the end of thirty minutes, if not delivered, the Crede method may be used, grasping the fundus of the uterus through a sterile towel, gripping it and pushing it down and backward in the line of the pelvic outlet and using as much traction on the eord as it will permit without damage.

One should wait at least an hour, using all available methods before introducing his hand into the uterus to deliver the placenta by manual extraction. If this has to be done, the walls of the uterus should be examined while the hand is in the uterus to be sure that no part of the placenta is left, avoiding the replacing of the hand into the uterus as much as possible. This is easily accomplished in a hospital, but unfortunately it more frequently occurs in the home than in the hospital, and every precaution should be taken against infection. All this is a surgical procedure and must be based on surgical principles, and even poor surroundings is no excuse for overlooking and failing to repair rents in the perineum and vaginal floor, and to close all pockets, for it renders your chances for bleeding less, closes up open field for infection, makes your patient's chance for recovery better, and, no doubt, helps to prevent a future relaxation of the vaginal walls. However, it is no guarantee against future prolapse or pouting of the vaginal walls.

In conclusion, I will stress the point that in seventy per cent of the labors the management of the third stage is a surgical proceeding and must be carried out on surgical principles, the final aim being to leave your patient as perfect as possible anatomically and physically.

This paper brings out nothing new. Every man of a few years experience in obstetrics knows what I have said to be true, but does he do as he knows? The human family has suffered greatly in the past few years from the new things brought out, such as pituitrin, "twilight sleep," radical version, etc., and my plea is to steer from those measures as a routine. They are all good when indicated, but the ruthless routine of such measures is dangerous.

Practice obstetrics, as you know it should be done. Don't be lazy. Do your best to lower this great mortality and to reduce post partum invalidism.

# CLINICAL REPORTS

## Operation and Discussion of Case at the Baptist Memorial Hospital During the Meeting of the Fellows of the American College of Surgeons, Kentucky, Tennessee and Arkansas—Memphis, Tennessee, February 27, 1922.

By Franklin D. Smythe, M. D., F. A. C. S.,
Memphis.

**Examination of patient.**—February 10, 1922. Female, age 31. Married. Housewife. Mother of three children—living and in good health—oldest 7 years, second 5 years, and the youngest 15 months of age. Patient referred to hospital.

**Patient admitted to hospital Feb., 10, 1922.**

**Chief complaint.**—Frequent and painful urination with burning sensation of the vulva, and an intense itching of the labia minora. Urine at times contain blood. Pain in both lumbar regions, extending downward and forward to the bladder. Pain in the back, low down, aggravated by standing and walking. For the past six days has urinated very frequently during the day, and five or six times during the night, and trouble has become progressively worse. She suffers from constipation and has a muco-purulent discharge from the vagina, worse about her period time.

**Past history.**—She has had mumps, measles, whooping cough and smallpox. All of these diseases she has had since she was grown; smallpox thirteen years ago, mild attack. Typhoid fever eight years ago. And she has had frequent attacks of tonsillitis.

**Menstrual history.**—Onset at the age of 13. Twenty-eight-day type. Duration four days. Pain precedes the flow from twelve to twenty-four hours, and disappears after flow is well established. Prior to birth of first child she suffered with dysmenorrhoea. Since birth of last child, fifteen months ago, period has been regular, though scanty. For the last three periods she has suffered considerable pain. One period was very scant—lasting only one day, the other two periods were of longer duration and more profuse than usual. Last period occurred January 20, 1922.

**Labors.**—Mother of three children. Her labors were rather rapid. She had no fever or other complications that she knows of except a slight tear of perineum. Was in bed ten days, usually got up feeling well but rather weak. Regained her health more slowly following the birth of her last child.

**Physical examination.**—Eyes: sclera slightly tinted. Ears: slight impairment of hearing both sides. Teeth and gums: bad condition, both upper and lower, Rigg's disease, gingivitis. Throat: tonsils both somewhat enlarged and rather red. Neck: normal; no enlargement of thyroid. Breasts: normal; no tumors. Lungs: normal, though she is a shallow breather. Heart: normal.

**General condition of patient.**—She is well developed, though somewhat anaemic and has lost some weight during the past year.

**Abdomen.**—Somewhat distended, though muscles seem flaccid. Stomach and intestines: distended. Spleen: not palpable. Morris and McBurney's points: pain rather severe upon pressure over both points. Liver: border projecting slightly below the costal cartilages. Gall bladder: there is a slight tenderness upon pressure over the organ, and pain is referred to the epigastrium when marked pressure is exerted over the region of gall bladder. Perpendicular percussion is positive. Digestion: fairly good though her appetite is poor. Hyperacidity at times, during eating or immediately thereafter, also flatulence.

**Pelvis.**—Vitiligo involving the labia majora on both sides, extending upward toward the groin and above the anterior commissure. Absence of a normal amount of hair. Labia Minora: hypertrophied with enlargement of the sebaceous glands. Hottentot's apron moderate size. Vulva: gaping slightly. Moderate rectocele and cystocele. Uterus: vaginal portion very short and small. Retroversion. Appendages: right side, not palpable; left side, ovary slightly prolapsed and tender upon pressure, though apparently not increased in size. Fundus of uterus: tender upon pressure and restricted in motion. Examination of patient in the genu-pectoral position. The admission of air into the vagina plus pressure exerted by the examining fingers resulted in the partial correction of the malposition of the uterus.

**Examination of urinary tract.**—Cystoscopic examination revealed the trigone intensely congested and the bladder mucosa generally inflamed. Ureters: both catheterized and specimens procured for examination and culture, and the pelves were again injected with a 1 to 1,000 nitrate of silver solution. The culture proved negative and the symptoms of the pyelitis disappeared. My associate, Dr. Frank W. Smythe, did the kidney, ureteral and bladder work. Bladder: the bladder was treated daily with a boric solution followed by an instillation of argyrol, ten per cent for a few days.

**Working diagnosis.**—Pyelitis, bilateral, staphylococcic; cystitis, chronic; vitiligo of vulva; Hottentot's apron; rectocele; cystocele; laceration of perineum, median, incomplete; uterus, enlarged and retroverted and partially fixed; appendicitis, chronic; cholecystitis, chronic.

**Comments.**—The pyelitis probably antedates the cystitis. The kidneys were doubtless infected through the blood stream—the tonsils probably atrium of the infection. The infection of the appendix and gall bladder might have resulted from the same source; though gall bladder infection is often the result of typhoid infection; and, as her gall bladder infection developed after she had typhoid fever, typhoid as a cause cannot be eliminated without a culture of the gall bladder contents and of the muscularis of the gall bladder. The pelvis pathology was the result of injuries sustained during childbirth.

**Preparation of the patient for operation.**—Laxative administered three days ago—2 drachms of compound licorice powder. The patient had been given a generous diet and has been given a liberal quantity of lithium and soda water. At 8 o'clock this morning she was given subcutaneously 200 cc of a 4 per cent sterile solution of C. P. mag. sulph. At 8:45 or one hour and fifteen minutes before the hour set for operation, one-eighth grain of morphia in 2 cc of a 25 per cent mag. sulph. solution was administered hypodermatically. Twenty minutes thereafter the same with 150th of a grain of atropine added was given. Twenty minutes later the third dose of morphine was given without the atropine. It is not our custom to administer the third eighth in any case where the patient is sufficiently affected from the morphine hitherto administered. Gwathney's technique.

**Operation.**—Gas and oxygen analgesia plus local anesthesia—novocain. After preparing the vulva, perineum and vagina for operation, a speculum was introduced, the anterior vaginal wall was elevated and the cervix uteri was caught with a double tenacula and drawn down for inspection. A slight unilateral laceration of the cervix was observed on the right side, not sufficient, however, in the opinion of the operator to warrant trachelorrhaphy in a woman as young as this woman who will in all probability give birth to several children in the future. Such a condition would be a case for operation in a woman who had passed the climacteric. An Allis forceps on either side was made to catch the remains of the hymen (caruncle myrtiformes) and the posterior vaginal wall, at its most prominent portion, was caught with third forceps; thus the two sides and the vagina were put upon the stretch. A semicircular incision was made, beginning on the left side at the point of attachment of the forceps and terminating at a similar point upon the opposite side. The mucous membrane was dissected upward for about one half inch, and the levator ani muscles exposed. It was not necessary to secure any bleeding points. After blunt dissection the tissues were separated sufficiently high to enable us to reduce the rectocele. Silk worm gut sutures were used subcutaneously for the purpose of approximating the muscles of the two sides in the median line; and the remaining fibres were brought together by the use of No. 2 chromic cat gut sutures. A similar suture was introduced submucously, beginning in the center and directed upward and to the right and brought back to the point of entrance, where it was re-inserted upward and to the left, emerging just within the line of incision of the mucous membrane (submucous sutures).

A wide and satisfactory exposure of the diastased member was made, thus giving a broad surface for approximation for union. The cat gut sutures are used for cosmetic purposes in the main. The operation resulted in repair of the injury and a practical restoration of the hymen.

The nymphae were excised from near the clitoris to the posterior commissure, both sides, and the edges of the incision were approximated by No. 1 cat gut sutures. We prefer not to pass the needle through the skin or mucous membrane in closing, owing to the risk of carrying infection to the subcutaneous and submucous structures.

Having completed the operation below, the patient was placed in proper position upon the table for the performance of the laparotomy. Median incision was made from near the umbilicus to the symphysis. The abdomen was not very vascular, and only a few vessels required ligating. The appendix was examined and found rather longer than normal, though apparently not much diseased. However, it was removed, as the patient gave a history of having suffered with chronic appendicitis for a number of years. The uterus was slightly increased in size and found occupying a position in Douglas' pouch, and the case was deemed a suitable one for the performance of Barret's operation for the radical cure of retroversion. Barrett's operation is sometimes incorrectly referred to as the internal Alexander. The operation is the intramural transplantation of the round ligaments, and is performed by the introduction of Barret's forceps, or a small pair of suitably curved forceps, the smaller the better, downward and outward toward the inguinal canal, near the internal ring, where the elevation of the handle of the forceps, directed behind the round ligament, is made to emerge from behind the peritoneum over the iliac muscles. Prior to the introduction of the forceps, a silk ligature has been placed around the round ligament, one or more inches from the attachment of the ligament to the uterus, on both sides, the ligament is then placed in the end of the open forceps by the assistant, the forceps are closed and the ligature is drawn backward; that is, in the opposite direction from which the forceps were introduced, bringing with it the round ligament. Both sides are treated in the same manner, and the round ligaments are sutured together over the rectus muscles and under the fascia. The operation results in holding the uterus in a forward position, the fundus not quite in contact with the anterior abdominal wall. Dystocia does not occur after this operation as it does where ventro-fixation has been done and some of the other operations resorted to for the relief of retroversion. The gall bladder was examined and found distended but contained no stones. The contents of the gall bladder were readily expressed and it was not deemed advisable to remove the organ in this case.

Time consumed in performing the operations above described, fifty minutes. Gas and oxygen analgesia plus local anesthesia—novocain—half of a one per cent solution—was used, and the patient during the fifty minutes was given perhaps one drachm of ether, near the outset of the administration of the anesthetic, for the reason that the patient's breathing was extremely shallow and slow. At the completion of the operation a few inhalations of oxygen were given and the patient was wide awake before the dressings were applied. The pulse remained about 80 during the operation, and the patient was pink throughout the operation. The surgeon likes to observe a pink patient and likes to heard of a pulse in the neighborhood of 80 while he is performing an operation.

I do not expect to be called upon to administer but little, if any, morphine following this operation, as it has been our experience that such patients rarely require a post-operative dose of morphine where they have been given the preparatory treatment administered in this case prior to operation.

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MARCH, 1922

# EDITORIALS

## THE MEMPHIS MEETING.

At Memphis.

April 11-12-13.

Clinics in various hospitals (see Memphis papers on arrival) on Tuesday, April 11.

General sessions at Hotel Chisca, beginning at 9:30 A. M., Wednesday, April 12.

House of Delegates at Hotel Chisca. First session at 1:30 P. M., Tuesday, April 11.

Section on Ophthalmology and Otolaryngology: Clinics on Monday, April 10, at Memphis General and at Baptist Hospitals; Scientific program at Hotel Chisca will begin at 9 A. M., Tuesday, April 11.

Section on Pediatrics with general session on Wednesday, April 12.

Entire membership will attend Clinical Conference at Lindsley Hall, University of Tennessee, on Tuesday evening, April 11.

Arrangements for lunch on Tuesday will be made so that members attending clinics will not have to leave the hospitals.

Dr. I. A. Abt, of Chicago, and Dr. Seale Harris, President of the Southern Medical Association, of Birmingham, will be guests of the Association, and will appear on the program on Wednesday. Dr. Marcus Feingold, of New Orleans, and Dr. G. E. Shambaugh of Chicago, will be guests of the Section on Ophthalmology and Otolaryngology, and will address the Section on Tuesday. All of these gentlemen are widely known as very able men in their respective professional fields—Dr. Abt in pediatrics, Dr. Harris in gastro-enterology, Dr. Feingold in ophthalmology, and Dr. Shambaugh in otology—and we will be greatly honored by their presence and participation in the program.

Registration will be at the Hotel Chisca, beginning on Wednesday morning, and probably at the hospitals on Tuesday.

The clinics will begin at 8:30 Tuesday morning. The Memphis papers will print the schedules. It is hoped that everybody will attend and attend promptly.

Dr. Bryce W. Fontaine, Chairman of the Entertainment Committee, informs the Journal that a buffet luncheon will be served to the members of the Assocation at the Baptist Hospital at one o'clock Tuesday afternoon.

On Wednesday evening the Association will be guests of the Memphis and Shelby County Medical Society at a dinner at the Hotel Chisca.

Dr. J. L. McGehee, Chairman of the Committee on Clinics, reports that all clinics have been arranged for. The surgical clinics at the Memphis General, the Baptist Memorial, and other hospitals, will occupy the morning of April 11 from 8 to 12 o'clock. The medical clinics will fill the afternoon of April 11, from 1 to 5 o'clock.

The Committee of the Memphis and Shelby County Medical Society are as follows:

Committee on Arrangements: Dr. O. S. McCown, Chairman, Dr. J. J. Cullings, Dr. T. N. Coppedge.

Committee on Entertainment: Dr. B. W. Fontaine, Chairman, Dr. Shields Abernathy, Dr. W. G. Somerville, Dr. W. T. Black, Dr. W. L. Williamson, Dr. Frank Ward Smythe, Dr. Coleman C. Burns, Dr. Carroll C. Turner.

Committee on Clinics: Dr. J. L. McGhee, Chairman, Dr. W. R. Bethea, Dr. Marcus Haase.

Committee on Exhibits: Dr. J. A. Vaughn.

## PRELIMINARY PROGRAM.

Presidential address, by Wm. Britt Burns, M. D., Memphis, President of the Tennessee State Medical Association.

"Some Clinical Aspects of the Anemias in Infancy and Childhood," by Isaac A. Abt, M. D., Chicago, guest of the Association.

"Gastroptosis," by Seale Harris, M. D., Birmingham, guest of the Association.

"What Shall We Do With Our Cases of Fibroid Tumor?" by C. N. Cowden, M. D., Nashville.

"Cancer of the Breast," by C. P. Fox, Sr., M. D., Greeneville.

"Endoscopy," by Hilliard Wood, M. D., Nashville.

"The Management of the Perineum Following Labor," by Lucius E. Burch, M. D., Nashville.

"Traumatic Brain Lesions," by E. Dunbar Newell, M. D., Chattanooga.

"Acute Intestinal Obstruction," by Robert Caldwell, M. D., Nashville.

"The Diagnosis of Extra-Uterine Pregnancy," by J. A. Crisler, M. D., Memphis.

"Orbital Tumors," (Lantern Slides), by E. C. Ellett, M. D., Memphis.

"Surgical Pathology of the Prostate," by W. A. Bryan, M. D., Nashville.

"Present Status of Pyloroplastry," by W. M. McCabe, Nashville.

"Abdominal Pregnancy at Term," by H. L. Fancher, M. D. Chattanooga.

A paper, by H. M. Tigert, M. D., Nashville.

"Papillary Epithelioma of Pelvis of the Kidney," by Perry Bromberg, M. D., Nashville.

"Osteomylitis," by J. P. Baird, M. D., Dyersburg.

"A New Splint for Maintaining Abduction and Traction of the Shoulder and Arm," by R. W. Billington, M. D., Nashville.

"The Early Diagnosis of Syphilis," by Marcus Haase, M. D., and C. H. Marshall, M. D., Memphis.

A paper, by Willis C. Campbell, M. D., Memphis.

"Hematacolpus Complicated with Ovarian Cyst and Appendicitis," by Wm. D. Sumpter, M. D., Nashville.

"Our Duty and Responsibility in the Face of the Abortion Evil," by J. C. Ayres, M. D., Memphis.

"The Treatment of Gonorrhea in Women," by I. G. Duncan, M. D., Memphis.

"Acute Intestinal Obstruction," by J. A. Vaughn, M. D., Memphis.

"The Treatment of Intestinal Obstruction," by L. L. Sheddan, M. D., Knoxville.

"Toxic Adenoma: The Employment of the Basal Metabolism Rate in Thyrotoxicosis," by W. D. Haggard, M. D., and F. B. Dunklin, M. D., Nashville.

"Seminal Vesiculitis," by John E. Hall, M. D., Nashville.

## CLINIC PROGRAM.

Below is the tentative program for the Clinical Day of the Memphis meeting. The forenoon, 8-12 o'clock, will be devoted to surgical clinics. Luncheon will be served at the Baptist Hospital from 12 to 1 P. M. Medical clinics will fill the afternon from 1 P. M. to 5 P. M. In the evening, beginning at 8 o'clock, there will be held a clinical pathological conference. Attached hereto is a list of those who will hold clinics:

### Tuesday, April 11—8A. M.-12 M.

**General Surgical Clinics.**—Dr. E. M. Holder, Dr. Battle Malone, Dr. L. W. Haskell, Dr. John L. Jelks, Dr. R. L. Sanders, Dr. Jos. E. Johnson, Dr. Eustace Semmes, Dr. E. J. Johnson, Dr. W. B. Burns, Dr. J. L. McGehee.

**Gynecological Clinics.**—Dr. John M. Maury, Dr. J. A. Crisler, Dr. Frank D. Smythe, Dr. W. T. Black.

**Obstetrical Clinics.**—Dr. Percy Toombs, Dr. J. C. Ayres.

**Orthopedic Clinic.**—Dr. Willis C. Campbell, Dr. E. J. Lipscomb, Dr. Henry Hill, Dr. Alphonse Meyer.

**Urologic Clinic.**—Dr. Geo. R. Livermore, Dr. O. S. McCown.

### 12 M.-1 P. M.

**Luncheon at Baptist Memorial Hospital.**

### 1 P. M.

**Medical Clinics.**—Dr. Frank Jones, Dr. Bryce W. Fontaine, Dr. Louis Leroy, Dr. O. S. Warr.

**Neurological Clinics.**—Dr. W. G. Somerville, Dr. R. C. Bunting, Dr. B. F. Turner.

**Dermatological Clinic.**—Dr. Marcus Haase and Dr. C. H. Marshall, Dr. R. G. Henderson and Dr. E. R. Hall.

**Pediatric Clinics.**—Dr. Edward Clay Mitchell, Dr. A. G. Jacobs, Dr. Gilbert Levy, Dr. Eugene Rosamond, Dr. Thos. F. Mitchell, Dr. J. J. Hobson.

### 8 P. M.

Clinical Pathological Conference held by Division of Medicine and Division of Pathology and Bacteriology, College of Medicine, University of Tennessee: Dr. J. B. McElroy, Chief; Dr. H. C. Schmeisser, Dr. J. A. McIntosh, Dr. Wm. Krauss.

**Case—Acholuric Icterus.**—Presentation of Clinical Phases by Dr. J. B. McElroy; Pathological Findings, Gross, by Dr. J. A. McIntosh; Pathological Findings, Microscopic, by Dr. H. C. Schmeisser.

Case then open for general discussion.

J. L. McGEHEE,
Chairman Committee on Clinics.

## CLINICS BY MEMBERS OF THE SOCIETY OF OPHTHALMOLOGY AND OTOLARYNGOLOGY MONDAY, APRIL 10, 1922.

9-12 A. M.—Operations.—Memphis General Hospital and Baptist Memorial Hospital.

Luncheon.

Afternoon.—Exhibition of cases including a discourse on "The Management of Chronic Suppurative Middle Ear Disease," by Dr. George Shambaugh of Chicago, Ill. Eye cases by Dr. Marcus Feingold of New Orleans, La.

6:30 P. M.—Doctor McKinney's dinner at the Country Club for the Section and its guests.

This will be followed by the Chairman's Address, Dr. E. B. Cayce, Nashville, Tenn., and Dr. Shambaugh's address "The Structure and Functions of the End Organs in the Internal Ear."

The Hotel Chisca being headquarters, cars will be provided there to take the members of the Section to the hospitals. Cars will leave to arrive at hospitals before 9 A. M., Monday.

**(Scientific Program. (Tuesday, April, 11.)**

(1) Chairman's Address—Dr. E. B. Cayce, Nashville, Tenn.

(2) "The Structure and Functions of the End Organs in the Internal Ear," (Lantern Slides), Dr. George E. Shambaugh, Chicago, Ill.

(3) "The Diagnosis of Fundus Lesions," (Illustrated), Dr. Marcus Feingold, New Orleans, La.

(4) "The Technique of the Heath Mastoid Operation," (Lantern Slides), Dr. W. Likely Simpson, Memphis, Tenn. To open discussion, Dr. P. M. Farrington, Memphis, Tenn.

(5) "Intra-Cranial Complications of Suppurative Middle Ear Disease," Dr. W. G. Kennon, Nashville, Tenn. To open discussion, Dr. W. W. Potter, Knoxville, Tenn.; Dr. Herschel Ezell, Nashville, Tenn.

(6) "Differential Diagnosis of Deafness," Dr. Willard Steele, Chattanooga, Tenn. To open discussion, Dr. Louis Levy, Memphis, Tenn.; Dr. R. H. Newman, Knoxville, Tenn.

(7) "After Cataract," Dr. Hilliard Wood, Nashville, Tenn. To open discussion, Dr. Marcus Feingold, New Orleans, La.; Dr. E. C. Ellett, Memphis, Tenn.

(8) "Intra-Ocular Tumors" (Lantern slides) Dr. E. C. Ellett, Memphis, Tenn. To open discussion, Dr. M. M. Cullom, Nashville, Tenn.; Dr. J. M. Hogshead, Chattanooga, Tenn.

(9) "The Relation of the Internist to Disease of the Eye, Eear, Nose and Throat," Dr. L. M. Scott, Jellico, Tenn. To open discussion, Dr. Geo. H. Price, Nashville, Tenn.; Dr. E. W. Patton, Chattanooga, Tenn.

(10) To be announced later. Dr. A. B. Dancey, Jackson, Tenn.

Numbers one and two will be presented at the Country Club Monday evening, April 10. The remainder at the Chisca Hotel in the Convention Hall.

The Section and guests will be guests of the Memphis Society of Ophthalmology and Laryngology at lunch Tuesday.

## LOCATIONS.

Dr. B. C. Hale, Rossville, Ga., writes the Journal that he is very anxious to secure a good physician for location at Ringgold, Ga., a town on the Dixie Highway and the W. and A. Railroad.

B. J. Ramsey, Sneedville, Tenn., appeals for a doctor to locate at Sneedville, Hancock County.

L. J. Catron, Superintendent of Public Instruction for Hancock County, makes a strong appeal for a doctor for Kyle's Ford. Mr. Catron can be addressed at Kyle's Ford, Tenn.

## WHY?

One of the hardest things for an honest-to-goodness official of almost any sort of an organization to do is to get replies to his official communications. When replies are made, they are as a rule made after careful scrutiny of the proposition submitted.

But! One of the easiest things for an unofficial individual or group to do is to get prompt response to any sort of communication he broadcasts over the land. Many times the response is favorable to his purposes and made without any sort of scrutiny of the proposition submitted.

Why? We gave it up—long ago.

What is our medical organization for? Why not use our own official machinery? Why, when things come from Tom, Dick, Harry and Beelzebub, not look into them before swallowing the bait, hook, sinker, line and pole?

Why? Darned if we know.

## RESIGNATION OF DR. FREDERICK GREEN.

Dr. Frederick R. Green, after a service of eighteen years, has resigned the secretaryship of the Council on Health and Public Instruction of the American Medical Association. Dr. Green will be associated with Dr. St. Clair Drake and Dr. John Dill Robertson in the publication of "Health," a monthly journal devoted to the interests of public health and education. The good wishes of his host of friends throughout the United States will follow him into his new work.

## TRAINING DISABLED CITIZENS FOR SUITABLE OCCUPATIONS.

The purpose of this article is to call to the attention of the physicians, nurses and hospital executives the program for rehabilitation training for disabled citizens in Tennessee. The last legislature of Tennessee accepted the provisions of a Federal Act for the training of citizens who are disabled and handicapped as the result of an accident, disease, or congenital defect. For the fiscal year, $44,000 is available for the payment of tuition, for books, tools, and institutional supplies for disabled persons undergoing rehabilitation training. To be eligible to the benefits of the Rehabilitation Law, a person must be sixteen years of age, or over, a resident of Tennessee during the past year, and handicapped on account of a physical injury. The injury does not have to be incurred in the course of employment. A person injured, for example, in an automobile accident or on a hunting trip, or disabled from disease or congenital defect is as eligible for rehabilitation training as is the person who is injured in a factory or in a mine.

The type and place of training, depend of course, upon the individual person's age, education, occupational experience, and physical disability. At present, eighty disabled persons are in rehabilitation courses. About one-half of this number are disabled women. The training is being given in the schools, shops, factories, and industrial establishments. The courses of training embrace Law, Electrical Engineering, Business Administration, Stenography, Bookkeeping, Mechanical Drafting, Show-Card Writing, Agriculture, Pedagogy, Shoe-making, Broom-making, Weaving and Chair caning. One young lady, who is totally blind, is being trained successfully as a dictaphone operator.

Civilian rehabilitation is simply another opportunity whereby the physicians and hospitals can render valuable service by encouraging the disabled to avail themselves of the benefits of this program for restoring the injured to a wage earning basis.

Mr. Robt. H. White, Nashville, Tennessee, is the State Director of Rehabilitation Training for Disabled Citizens. He desires the cooperation of all the medical agencies throughout the State in acquainting, not only the disabled, but the public in general, with the purpose and the program of this work. Fortunately, the usual red tape so characteristic of federal aided work is eliminated in this particular activity. Simply report the name and address and disability of the disabled with whom you come in contact to Mr. White, who will give the case immediate attention. To interest the entire citizenship of the state in this work is his aim, to carry into every nook and crook of Tennessee the message that if mental ability is present, the only hopeless cripple is the person who chooses to be such. To give to our handicapped citizens the spirit, not of a hopeless life, but of a life full of hope, is the goal toward which the rehabilitation agency is striving.

This is a movement which appears to be entirely worthy of the active interest and helpful co-operation of the profession of the state. Mr. White brings to this good work an earnest zeal and an intelligent understanding of the problems to be dealt with, as well as a splendid energy which has already been brought to bear, to great advantage, in serving his state in the field of public education.

## AFTER TWELVE YEARS.

After twelve years' of work, if not of service, in the field of public health in Tennessee, and after nearly as many years in the position of Secretary-Editor of the Tennessee State Medical Association, I have accepted the assignment of Field Secretary of the American Medical Association, and have submitted my resignation as Secretary and Executive Officer of the State Board of Health, to take effect April 5, 1922.

In the work I have tried to do through all these twelve years, I have been the recipient of many helpful kindnesses at the hands of the doctors of Tennessee, for which I hereby make most grateful acknowledgment. The friendships I have been privileged to hold have been treasured beyond measure and will not be forgotten.

OLIN WEST.

## OFFICERS AND COMMITTEES.

Officers and committees of the Tennessee State Medical Association for 1921-22 are as follows:

President, Dr. William Britt Burns, Porter Building, Memphis.

Vice-President for West Tennessee, Dr. A. B. Dancy, Jackson.

Vice-President for Middle Tennessee, Dr. L. W. Edwards, Nashville.

Vice-President for East Tennessee, Dr. G. P. Zirkle, Kingston.

Speaker of House of Delegates, Dr. A. F. Richards, Sparta.

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Committee on Medical Defense:

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Dr. E. C. Ellett, Chairman, Memphis; Dr. S. T. Hubbard, Chattanooga; Dr. Hilliard Wood, Nashville.

Committee on Health and Public Instruction:

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Committee on Social Insurance:

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Committee on Scientific Work:

Dr. Olin West, Nashville, Chairman; Dr. J. H. Revington, Chattanooga; Dr. Percy H. Wood, Memphis.

## MISCELLANEOUS

### PHYSICAL STANDARDS FOR CHILDREN.

Washington, D. C.—The U. S. Public Health Service has for a long time been occupied in various parts of the country in an investigation of physical standards of children.

Before relief can be fairly applied to children it is necessary to know whether or not a particular child really needs it. Of course, many children show their need plainly, but many others whose need is even greater may not show it to casual inspection until it is too late wholly to prevent the consequences.

The common test of a child's health development, and about the only test that can be applied to children in mass, is to ascertain by some standard table of age-weights prepared for the purpose, whether or not they weigh as much as they should at their age. If the child is 10 per cent or more under standard it is considered to be under nourished and is treated accordingly.

This, however, may or may not be the case, for the standard tables are largely approximations. Nevertheless they serve a useful purpose, pending the establishment of more accurate and scientific standards, by calling attention to individual children and causing a more careful examination to determine whether the substandard weight is due to a remedial cause.

Some of the age-weight standards used in the United States are merely averages of all classes of children, including with the well those who have hampering physical defects and those who are actually undernourished. They probably never did apply to all parts of the United States and quite possibly they no longer apply even to the particluar part for which they were originally devised.

Immigration may have worked great alteration in the population; the region may have changed from agricultural to industrial; or other changes may have occurred.

The population of the United States is very varied. It comprises lanky New England fishermen, short strong Italians, heavy broad-shouldered Germans, small lithe Cockneys, and men of many other racial strains (not to mention a few ancestral Americans)—and blends of them all. Moreover, it lives under many different climatic conditions, wet or dry, cold or hot; and it lives on diets that in one section depend largely on meat, in another on sea food, in a third, on cornmeal and pork. All these conditions are more or less local and all tend to produce children whose physique conforms to a local and not to a general standard.

In view of this the Public Health Service is making studies of the physical development of normal children in different states and is accumulating data that may serve as a basis for a possible (though unlikely) general standard or for a number of standards which may apply to more or less homogenous parts of the country and may indicate, far more accurately than any existing standard, the physique of the normal child by which the condition and nutritive needs of the particular child may be judged.

These studies compose the making of physical measurements of all children and of collating them according to race, sex, age, habitat (city or country), and ancestry (native born of American born parents, native born of foreign-born parents, or foreign-born of foreign-born parents). The data obtained should help to determine the influence of the different racial types and of immigration as a whole on the national physique.

In this work the Public Health Service has obtained the co-operation in several of the largest cities of the educational and health authorities and in many rural counties of the state directors of child hygiene. The work and association will be extended in other states in the near future.

One state where such an investigation is being made by the Public Health Service in co-operation with the State Board of Health is Florida, where the population is largely homogeneous—lives under similar climatic and food-supply conditions and is largely native born.

A state-wide investigation, now in progress, concerning children's problems, particularly the effects of physical defects and septic mouth conditions on nutrition and development, is being supplemented by careful physical examinations and measurements in two counties of all school children; and from this it is hoped that a standard for the state and the region may be framed.

## THE ST. LOUIS MEETING OF THE AMERICAN MEDICAL ASSOCIATION.

The arrangements of the St. Louis profession for the meeting places for the Session of the A. M. A., which is to be held in their city May 22-26 next, are singularly fortunate and convenient; never has the Association been so well favored in this respect. The district in which the meeting is to take place is at the west edge of the business section of the city,easily accessible from all directions by street car or otherwise and not more than fifteen minutes street car ride from the most distant hotel. The grouping of the meeting places is so compact that should one walk from the Registration Building (Moolah Temple) to the farthest hall it can be done in ten minutes or less; from section to section is a matter of from one to five minutes. The convenience of the location and arrangements of the different halls is more outstanding than in any other city in which the Association has met, and a decided improvement over the accomodations which were had at the meeting in St. Louis, 1910.

The registration office, post office and commercial exhibit is to be in the Moolah Temple (Shrine), a beautiful and commodious building on Lindell Boulevard, two blocks west of Grand Avenue. At the other extremity of the group is the Odean, the home of the St. Louis Symphony Orchestra, with a main hall which seats better than 2000, and several lesser halls. The main hall will be used for the opening session. Its acoustics are particularly good and suited to our purposes. The Sections on Practice of Medicine and Diseases of Children meet here. In the assembly hall of the same building the Sections on Pharmocology and Therapeutics, and on Pathology and Physiology will meet. (It will be noted that there has been an aim to foregather closely allied sections.) The Sheldon Memorial, a very beautiful new hall on Washington Avenue one-half block west of Grand Avenue, which most admirably meet all requirements, will be the meeting place of the Sections on Ophthalmology, and Laryngology, Otology and Rhinology. The sections on Surgery, General and Abdominal, and on Obstetrics, Gynecology and Abdominal Surgery, will be held in the Third Baptist Church on Grand Avenue, a situation well suited to the demands. The Sections on Orthopedics and Nervous and Mental Diseases will meet in the Law School of the St. Louis University, on Lindell Avenue, a few steps west of Grand. The hall easily seats 500 and is both comfortable and convenient. Dermatology and Syphilis and Urology will use the large Union Methodist Church, on Delmar Avenue just west of Grand, which meets every requirement. The Sections on Gastro-Enterology, Proctology and on Preventive Medicine will use the large hall in the Musicians Club on Pine Street, east of Grand Avenue, and next to the building of the St. Louis Medical Society, where the House of Delegates will hold its sessions. The Section on Stomatology is assigned to the assembly hall of St. Peters Parish House, one block west of Grand Avenue on Lindell. Immediately in this district will be found three of St. Louis's most important Clubs, the St. Louis, University and the Columbian. Restaurants catering to every grade of patronage are numerous in the district and precautions have been taken to insure that normal rates continue during the meeting.

The St. Louis profession is preparing for an unusual attendance; hotel reservations are coming in rapidly but it is purposed that even the late comer shall be comfortably housed. The wise traveler, however, makes his reservation as early as he finds it possible. Dr. M. B. Clopton, 3525 Pine St., St. Louis is Chairman of the Committee on Sections and Section Work.

## A NEW LOCAL ANESTHETIC.

From time to time new anesthetics to take the place of cocaine have been proposed, and to some extent used, but without utterly supplanting the older and rather dangerous drug. Now, however, the surgeon has a substitute that is a decided improvement. The new local anesthetic is called Butyn (pronounced **Bute-in**, with the accent on the first syllable). It is the discovery of Professors Roger Adams and Oliver Kamm of the University of Illinois and Dr. E. H. Volwiler of The Abbott Laboratories, Chicago.

The anesthetic has bene passed by the Council on Pharmacy and Chemistry, of The American Medical Association. In his report, Dr. A. E. Bulson, Jr., for the Committee on Local Anesthesia, Section of Ophthalmology, said that it acts more rapidly than cocaine and its action is more prolonged. Less is required, and in the quantity necessary it is less toxic than cocane. It has other advantages which make it highly useful, especially for eye work. A solution can be boiled without impairing its efficiency.

The Abbott Laboratories are supplying Butyn in tablets (with and without epinephrin) and 2 per cent solutions, which may be had withou tnarcotic blanks.

## ARKANSAS MEDICAL SOCIETY.

**Office of Secretary—Editor**
Little Rock, March 1, 1922.

Dear Secretary:

The motive of our coming annual session to be held in Little Rock, May 17-19, is to be the "homecoming meeting" and we are very desirous of informing our old time doctors from Arkansas, now practising in other states, and of stressing the fact that we shall expect them to be with us at the time indicated. This will be especially applicable to those desiring to attend the meeting of the American Medical Association at St. Louis; as they can stop off with us, renew old acquaintances and resume their journey.

We shall appreciate it very much if you will carry a suitable news item in your Journal, setting forth our good intentions, that those in your state may be reminded of the invitation extended to them. This may seem unique; but in the ever-changing present the unexpected happens daily. Therefore, we are relying on the cooperation and active assistance of our friends on putting this meeting over.

Thanking you in advance for any courtesy you may be able to extend, and trusting that we may have a visit from you along with the others from your state, we are

Most cordially yours,
WM. R. BATHURST.
Secretary—Editor.

# OUR COUNTY SOCIETIES

## DICKSON COUNTY.

Dr. Hartwell Weaver is president, Dr. C. M. Lovell, vice-president, and Dr. W. J. Sugg secretary of the Dickson County Medical Society. All of these live at Dickson. Dr. Sugg will represent his society in the House of Delegates at Memphis.

## PUTNAM COUNTY.

Officers of the Putnam County Medical Society for 1922 are: Dr. L. M. Freeman, Granville, president; Dr. L. S. Love, Silver Point, first vice-president; Dr. Samuel Denton, Buffalo Valley, second vice-president; Dr. Lex Dyer, Cookeville, secretary-treasurer.

## SHELBY COUNTY.

The Memphis and Shelby County Medical Society, now one of the largest county organizations in the South, has found it advisable to adopt a new constitution and by-laws and is now following several new lines of procedure. One of the most important of the innovations is the creation of a House of Delegates, with a relatively large membership, to which will be referred all matters of policy and of major business.

The Memphis and Shelby County Medical Society is alive and going, with a membership approaching the three hundred mark.

## WARREN COUNTY.

Dr. R. L. Maloney, Secretary of the Warren County Medical Society, has reported the names of six members for 1922 enrollment, five paying medical defense assessments.

## TREATMENT OF CUTANEOUS ANTHRAX.

The measures of local therapy of malignant pustule that have been in common use for many years are condemned by Joseph C. Regan, Brooklyn (Journal A. M. A., Dec. 17, 1921), who says that as anthrax in man is primarily a local infection, with a decided tendency to remain as such in a high proportion of cases, no method of treatment is warranted which tends to break down the barrier zone of the inflammatory process which Nature has so carefully and characteristically constructed in this disease. Antianthrax serum should be administered both locally around the lesion and generally into the circulation by the subcutaneous, intramuscular or intravenous routes. The dosage, frequency of injection and route used necessarily depend on the location and severity of the lesions, the presence or absence of anthrax septicemia and. to a lesser extent. on the degree of the constitutional symptoms. The local injection of serum around the lesion every twelve to twenty-four hours is a most desirable method to replace the local measures until lately in common use. It possesses none of the disadvantages or dangers of the previous methods. On the contrary, it is an additional safeguard against an anthrax septicemia, and appears to exert a very beneficial action in bringing about a rapid subsistence of the malignant pustule itself. Eight cases of anthrax have been successfully treated in this manner. The acute information disappeared from the second to the sixth day of treatment, the eschar separated from the twelfth to the twenty-first day, and the wound healed from the twentieth to the thirty-second day. No sequelae were noted in any instance, and the scar left was so minute as to pass unnoticed. The acute stage was over within a week.

## BOOK REVIEWS.

PAPERS FROM THE MAYO FOUNDATION AND THE MEDICAL SCHOOL OF THE UNIVERSITY OF MINNESOTA, Vol. I, 1915-1920. Cloth. 657 pp. W. B. Saunders Company, Philadelphia and London, 1921.

This publication, the first of what is intended as a series, is an assembly of articles and abstracts which have emanated from the institutions under the control of the Mayo Foundation and the Medical School of the University of Minnesota. Nearly all, it is stated in the preface, were originally in the form of theses presented as prerequisites to a degree and some have already been published in current literature.

The contents of the book are grouped in sections on an anomatical subdivision, ie., "Alimentary Tract," "Urogenital Organs," etc., and include approximately sixty-five papers or abstracts by about the same number of authors.

The wide diversity of the character of studies here presented and the fact that much of their contained data appears here in abstract form only, limits the usefulness of the work quite materially, unless one is reminded that the principal function of a work of this character is academic in origin and that the stimulation of study by original methods and research should be a genuine and sincere objective on the part of American institutions in all branches of science.—R. C. D.

PROTEIN THERAPY AND NONSPECIFIC RESISTANCE.—By William F. Petersen, M. D., Associate in Pathology, University of Illinois, College of Medicine, Chicago, Ill. With introduction by Joseph L. Miller, M. D., Professor of Medicine, Rush Medical College, University of Chicago, Chicago, Ill. Cloth, 314 pp. New York. The MacMillan Company, 1922.

This work is an exposition and compilation in monographic style of one of the most important chapters of therapy and by one of the most capable workers in this particular field of research. The book is particularly timely in that an immense amount of pseudo-science and unfounded theory is gradually gaining currency among physicians and others and is being furthered largely by business and sales managers of various manufacturing companies. This book is to be recommended to physicians who have a genuine interest in the phenomena of pathology, and should prove invaluable to investigators in that it contains a systematic record of all that has been already accomplished in various lines of research. A very comprehensive bibliography,—arranged by authors alphabetically, occupies the last fifty pages of the work which may be cited as an index of the thoroughness with which Dr. Petersen has accomplished his task.—R. C. D.

## BOOK REVIEWS.

AMERICAN ILLUSTRATED MEDICAL DICTIONARY.—By W. A. Newman Dorland, M. D. Eleventh Edition, Revised and enlarged. W. B. Saunders Company, Philadelphia. Flexible leather, $7.00; with thumb index, $8.00.

The man who invented the flexible leather bindind for service books deserves a crown, and the makers of the American Illustrated Dictionary deserve praise for adopting the invention. One who reads medicine or one who writes on medical subjects must have at hand a dependable medical dictionary. To such an one Dorland's is a comfort and a help in all times of word or phrase trouble. It is not bulky, but it is easy to handle and it has in it what you need to find. The new eleventh edition has nearly 350 illustrations and is said to contain more than 1500 new terms. The doctor, the dentist, the chemist, the pharmacist, the nurse, and the veterinary surgeon, all will find this splendid dictionary a most valuable help when a dictionary is needed.

A TEBT BOOK OF PHYSIOLOGY.—By William H. Howell, Ph. D., M. D., Professor of Physiology, Johns Hopkins University, Baltimore. Eighth edition, Thoroughly revised. 1053 pages, 308 illustrations. W. B. Saunders Company, Philadelphia. Cloth, $6.50.

In a recent article which appeared in this Journal it was stated that nothing much had been added to our knowledge of physiology since the days of the elder Flint. Whosoever subscribes to that statement should study the new eighth edition of the very splendid and very practical text book prepared by Dr. Howell. As he states in his preface, there has been no such epoch-making discovery made within very recent years, but there has been, year after year, a growing ability to interpret and to apply the older principles and the results of a vast amount of research in physiology which has been constantly going on for very many years. Within the scope of our knowledge of books on physiology there is none that is more practical and helpful than Howell. It is unfortunate indeed that so many doctors seem to feel that their courses in the medical schools gave them all they need for all time of physiology. There should be more study of this fundamental subject.

NEOPOLASTIC DISEASES.—A Treatise on Tumors. By James Ewing, M. D., Professor of Pathology at Cornell University Medical College, New York. W. B. Saunders Company, Philadelphia. Cloth, $12.00.

This is one of the most distinguished contributions to the scientific literature of the times, not only because of the great wealth of valuable instruction to be had from it, but also because of the manner in which it is presented, whereby a new and better method of studying and classifying tumors is developed. The work is wonderfully complete from every standpoint and will be found to be an invaluable addition to every medical library. To review a work of this kind here would be simply to touch an occasional spot of a great mass of authoritative writing which no praise can make stronger, nor any unfavorable criticism, if any could be made, would at all weaken

DISEASES OF THE SKIN AND THE ERUPTIVE FEVERS.—By Jay Frank Schamberg, M. D., Professor of Dermatology and Syphilis, University of Pennsylvania. Fourth edition, thoroughly revised. W. B. Saunders Company, Philadelphia. Cloth, $5.00.

As co-author of "Acute Contagious Diseases," Welch and Schamberg, the writer of the book under review came to be known throughout the United States as an authority on the eruptive fevers. The same excellence which characterized that part of the work published under the joint authorship above referred to which was done by Dr. Schamberg attaches to this later book of which he is sole author. The discussion of the various diseases of the skin is briefer than is to be found in some other texts, but is intensely practical in nature. The chapter on syphilis, as might be expected because of the great work Schamberg and his co-workers have done on this disease, is a very strong feature of the book. The eruptive fevers are very thoroughly covered, so that this part alone is worth to any practicing physician for use in his routine work many times the cost of the book. This volume is recommended most heartily to any who wish to have a practical work-book dealing with the subjects included.

GENERAL BACTERIOLOGY.—By Edwin O. Jordan, Ph. D., Professor of Bacteriology in the University of Chicago and in Rush Medical College. Seventh edition, thoroughly revised. W. B. Saunders Company, Philadelphia. Cloth, $5.00.

Seven revised editions of this book since its first appearance about a dozen years ago, in addition to reprintings of each edition, indicate very clearly the esteem in which it is held as a text book on bacteriology. The latest revision has been very complete and the present edition is right up to the times, including a large amount of new material. The whole field of bacteriology is covered, non-pathogenic as well as pathogenic bacteria being considered. The chapters on streptococci and pneumococci have been rewritten to include all that recent research has established concerning these very important pathogenic organisms. The splendid chapter on "Methods of Studying Bacteria" will strongly commend this book to the student and to the laboratory worker.

THE JOURNAL
OF THE
TENNESSEE STATE MEDICAL ASSOCIATION

DEVOTED TO THE INTERESTS OF THE MEDICAL PROFESSION OF TENNESSEE
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LARKIN SMITH, M. D., Editor and Secretary J. F. GALLAGHER, M. D., Associate Editor
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VOLUME XIV NASHVILLE, TENN., APRIL, 1922 NUMBER 12

# MENTAL DISEASE AS RELATED TO AGE: A REPORT OF 1200 RECENT ADMISSIONS TO THE CENTRAL STATE HOSPITAL.*

By W. Scott Farmer, M. D.,
Nashville.

The future medical man who fails to get experience as an interne, or otherwise, in a hospital for mental disease cannot consider his medical education complete, for in our institutions, excepting diseases of children and obstetrics, we have everything that a general hospital has, plus insanity.

It is taking the world a long time to find out than an insane man is a sick man and needs a sick man's care. There is another thing that I desire to emphasize: that is, no citizen of our state is immune from disease of the mind, and before death many have to be cared for in one of our hospitals for the insane. This thought may be somewhat depressing, but nevertheless it is true; and it should stimulate our citizens to make our hospitals for the insane the equal to any general hospital, for the study of mental disease is undoubtedly the greatest specialty of the age.

During my experience as superintendent for four and one-half years at the Central State Hospital, we have received patients from all walks of life—the citizen from his mansion, the laborer from his shanty, the wealthy and the beggar, the man of religion, the man of law, the man of science, the Christian and the Jew, the physician, the lawyer, the clergyman, the farmer, the mechanic, the school teacher, those who once were office holders, and those whose voices echoed and reverberated at our state capitol as law-makers; the rich and the poor alike have knocked at our door for admission and turned to our guild for relief.

Therefore, I thought it might not be out of order to direct your attention for a few moments to mental disease as related to age. Age may be conveniently divided into six periods, according to Dercum:

1. Infancy, the period from birth to puberty.
2. Adolescence, the period from puberty to adult age.
3. Early adult age.
4. Mature adult age.
5. Middle age.
6. Old age.

Such a division is largely arbitrary, but clinically useful."

In looking over the records of over 1200 recent admissions presented to our staff for diagnosis and treatment, we find that we had:

Admitted at age from 15 to 20, 44, or 3.64 per cent, or one out of every twenty-seven and one-half.

Admitted at age from 20 to 30, 283, or 23.39 per cent, or one out of every four and one-half.

Admitted at age from 30 to 40, 301, or 24.88 per cent, or one out of every four.

Admitted at age from 40 to 50, 265, or 21.9 per cent, or one out of every four and one-half.

Admitted at age from 50 to 60, 155, or 12.81 per cent, or one out of every seven and one-fourth.

Admitted at age from 70 to 80, 37, or 3.05 per cent, or one out of every thirty-two and one-fourth.

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*Read at the annual meeting of the Tennessee State Medical Association at Nashville, April, 1921.

DR. J. W. BRANDAU, Clarksville: I want to mention one point in regard to the care of the insane in our state. I do not know where I have listened to a better paper than the one presented by Dr. Farmer. If a patient who is mentally deranged becomes at all violent he or she, as the case may be, is put in the county jail, just like a criminal. This is not right. It is a disgrace to our state. I do not know just what is the best remedy to offer, but I simply mention this in order that others may suggest something.

DR. W. SCOTT FARMER, Nashville (Closing): I wish to thank the members for their remarks. Dr. Brandau is evidently correct in what he said. We are trying to educate the people that an insane man or woman should not be put in jail. These people are not criminals, they are sick people, and very few of them now in Tennessee are put in jail just like they were several years ago.

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## RADIOTHERAPY IN MALIGNANCY.*

By C. M. Hamilton, M. D.,
Nashville.

There are three recognized therapeutic measures for combatting malignant diseases, viz., surgery, x-ray, and radium. Although the subect of this communication is confined to the two physical agents, it is not intended to present them in the light of competing methods with surgery, nor as a substitute for surgical methods, but rather for the purpose of determining the indications and relative values of each. The importance of malignant disease is such that it behooves all workers in this field to enter into a full and frank discussion of the methods for controlling this malady, to the end that its incidence and death rate may be reduced to a minimum.

Surgery has done a great deal to relieve patients suffering with malignancy, but it should be admitted that surgery, radiation, or any other plan of treatment is a failure which does not relieve more than fifty per cent of the cases. Notwithstanding this fact, I believe better results can be attained if a more judicious selection of the remedial agent is exercised in individual cases. Not infrequently the best procedure will consist in the use of all measures properly combined and adapted to each other. Some over-enthusiastic members of the profession are too prone to rely entirely upon a particular agent. I firmly believe that too many patients, especially those with deep-seated malignancy, are being treated by radiation alone, where surgery is indicated—probably less extensive surgery than is the present practice. On the other hand, I am as equally convinced that too little radiation is practiced on surgical cases. In a review of the literature I find that both surgeons and radiologists are laying greater stress on the importance of pre-operative and post-operative radiation.

Just how radiant energy influences tissue is a very unsettled question. Individual opinions of biologists and radiologists differ. There are many known principles that guide the radiologist in his application of radiation to disease; however, he is unable to explain all principles entirely satisfactorily. It is known that mild dosage is stimulative to nearly every type of tissue both normal and pathologic, and that massive dosage is destructive. The selective action of radiant energy on various types of tissue is a subject under much discussion. Embryonic cells and rapidly growing tissues are the most sensitive to radiation. On the other hand, highly specialized tissues are more resistant to radiation. Glandular and epithelial cells are more sensitive than connective tissue. Biologists claim that the sensibility of cells to radiation varies according to the life cycle of cells. All cells are more sensitive during the mitotic changes than normally. The ascaris ova have been shown to be eight times more sensitive during mitosis than in the resting stage. Therefore repeated radiation at frequent intervals might give better results in resistant cases, just as fractional sterilization is made use of to kill spore forming micro-organisms.

Montgomery and Culver, of San Francisco, recently advanced the theory that mineral matter in tissues increases the absorption of radiation energy, which helps to explain the sensitiveness of tissue rich in blood supply. This may offer a solution to the extreme sensitiveness of blood cells and the resistant character of scirrhus carcinoma to destructive influences of radiotherapy.

Another theory of tissue reaction is as to the production of antibodies that act in a manner similar to antitoxins conferring immunity to certain diseases Radiant energy seems to have a tissue reaction with the production of antibodies that are detrimental to the livelihood of certain micro-organisms and, at the same time, radiation has little or no influence upon a laboratory specimen of the same organisms in pure culture. A fair example of this peculiar action of radiation is illustrated by the ring worm fungus, which responds to radiation only when imbedded within living tissue. It may be that anti-bodies are produced which aid in the destruction of cancerous processes also. It is known that even small, deep-seated, malignant tumors respond more readily to radiotherapy when larger areas are treated when only an area the size of the tumor is used. It has been thought by most radiologists that secondary rays are produced within the tissue which attack cancerous cells. However, I see no reason why anti-bodies cannot be produced which are injurious to the life and progress of cancer cells as well as to the organisms already alluded to. Be this as it may, Finzi claims that malignant cells are destroyed by the production of fibrous tissue, which contracts, thus choking off the cell nutrition. Ewing, Schmitz, and others claim they have seen nuclear destruction, cell vacuolization, round cell infiltration, and other microscopic changes due to radioactivity prior to the appearance of fibroblasts. They conclude that the rays act directly upon the cells. There are still others who claim that fibrosis is nature's effort to retard cancerous progress, and is present before radiation is instituted. They contend that cancer cells are destroyed by radiation, leaving the more resistant, connective stroma as a fibrosis.

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*Read before the Nashville Academy of Medicine and Davidson County Medical Society, March 21, 1922.

An unstable phase of the complex problem of radiotherapy is its method of application. It has been realized for several years that superficial cancerous processes react to radiation beautifully, regardless of the method used, when it is given sufficient quantities. This is due to the accessibility of the tumor which allows the rays to reach the seat of the trouble. Radiologists agree that remote lesions should respond in a similar manner provided sufficient radiation could be absorbed by the tumor. It is said that the radiation effect upon a tumor is in direct proportion to the amount of radiation energy absorbed.

With the advent of the ionization chamber and other means of measuring energy, a more standardized technique is being approached, but it is far from perfect, and in my opinion will never be absolutely so, because every case is a law unto itself. Different neoplasms vary in sensitiveness to radiation, but within certain bounds every tumor responds. Not only do cancers vary in resistance to radiation according to their cellular structure, but each varies according to its location, blood supply, duration, and rapidity of growth. Lymphosarcomas and basal cell carcinomas are said to respond to an erythema dosage of raying, while seven or eight times this amount is necessary to destroy the more resistant intestinal carcinomas or some of the bone and periosteal sarcomas.

There are four methods of applying radiotherapy: (1) Moderately filtered high voltage x-rays administered through many small portals of entry, producing a cross-fire effect in the desired area. (2) The so-called German technique, which requires a special apparatus yielding a voltage of two hundred thousand or more, administered through a heavy filter over large areas, with a tube distance of twenty-four to twenty-six inches. (3) Radium packs. (4) Insertion of radium needles within the tumor substance.

The German radiologists claim carcinoma of the cervix can be cured by x-rays alone. They subject their patients to treatment from eight to fifteen hours given in one day or in successive days. They are very careful in their technique and have worked out a scale whereby the treatment is regulated according to the thickness of the pelvis. Seitz and Wintz reported twenty-four cases treated by this method with twenty-three absolutely free from disease after a period of one year. Although radiologists of this country have failed to get such remarkable results, they admit that great progress has been made in x-ray therapy. Pfaler, of Philadelphia, reports gratifying results in four cases of carcinoma of the spine treated with a modification of this technique.

I can readily see how a higher percentage of depth dosage can be obtained with heavy filter and hard penetrating rays, but the quality of these rays must play a part in their effectiveness. Dr. Loeb, of the University of Chicago, claims that less penetrating rays, or rays with longer wave lengths, have a higher ionizing value than the more penetrating short wave length type of rays adopted by the Germans. Admitting that a greater depth dosage can be given by the newer method, it is still uncertain which method will give the best results. The Crocker Institute authorities are in accord with Dr. Loeb's contention that the ionizing value of rays varies with the wave lengths, but many reputable radiologists consider these experimentations misleading and unreliable in actual practice.

I cannot believe this method of radiation is as efficient as surgery or radium, but I regard it a great adjunct to both. It strikes me that a better plan of procedure is to use radium internally in all hollow organs with external approach, radium needles in all accessible tumors, and a thorough x-ray radiation covering the tumor and its lymphatic areas. This method has the advantage of the local effect of radium and the more homogenous radiation of x-ray. I consider it a waste of time and energy to use small amounts of heavily filtered long distance applications of radium when more can be done with x-ray. By applying radium at the site of lesion the majority of the rays will be within diseased tissue which will tend to protect the normal. Especially is this true in cancer of the breast or other glandular involvement amenable to the insertion of radium needles. Most radiologists of this country think needle therapy within the tumor and x-ray from without an ideal plan of radiation. Dr. Bowen, of Columbus, Ohio, advises the use of needles whenever possible, giving the heaviest possible dose the normal tissues are capable of recovering from. By placing the needles well under the skin more radiation can be given with but little harm to the skin, which is three to five times more sensitive than subcutaneous tissue.

There are but few pathologic conditions that require more skill and judgment than to correctly irradiate a malignant process which has such a wide range of variation in sensitiveness. It is imperative to give as near a lethal dose as possible in the first attempt at radiation. Normal tissues withstand heavy radiation at frequent intervals for a short time much better than repeated light radiation over a long period. It is recognied by radiologists in general that with each treatment normal cells become more sensitive to radiation and that with each subsequent lethal dose, malignant cells become more immune to radiation. This is no doubt due to a diminished blood supply and fibrosis which naturally lowers the vitality of normal cells. The cancerous cells are probably rendered less sensitive by the tumor taking on a fibroid or more scirrhus character, thereby lessening the predominance of glandular and epithelial structures than are usually prevalent in the beginning of treatment.

In conclusion, I confess that radiotherapy is accompanied by many unpleasant complications consisting of radiation sickness, recto vaginal and vesico-vaginal fistulae, and unsightly burns, when improperly applied. The relative frequency of radiation sickness demands some attention. It is a frequently discussed question amongst radiologists and a condition which to some degree is uncontrollable. There are two types of radiation sickness, the immediate and the delayed The immediate sickness comes on during the application of treatment and is likely due to poor ventilation, electrical gasses, and phsychic influences. In the delayed type, headache, nausea, and vomiting are probably the result of a proteose poisoning incident to destructive action to a large number of blood cells. This condition usually appears from twelve to thirty-six hours after treatment.

Notwithstanding these disadvantages, I feel that radiotherapy has a definite place in the treatment of malignant diseases. I am sure that better results can be obtained from radical excision of the breast with a thorough pre-operative and post-operative radiation. The cancer cells are thought to have a greater affinity for radiation in the pre-operative stage before the blood supply is diminished and before fibrosis has occurred. Dr. Wood, of the Crocker Institute, says that healthy mouse tumors can be transplanted from one mouse to another in almost 100 per cent of the cases. If these tumors receive a lethal dose prior to the transplantation, none of them will live. Those tumors receiving a sublethal radiation will survive as transplants in a small per cent of the cases as a slow growing scirrhus type of tumor.

Observers differ in their opinion as to how soon cases should be operated upon after radiation. Dr. Quigley, Omaha, Neb., advises immediate operation after radiating the breast and its lymph draining regions. Dr. Des Jardin, Quick, Boggs, Pfahler, and Kirkendall think it best to wait from three to eight weeks. It is thought by many rediologists that a more rational procedure is a less extensive excision of the breast—simply the removal of the malignant mass leaving the glandular involvement to radiotherapy. In this way there will be fewer cases suffering from pains and swelling of the arms as a result of cicatricial contraction. This plan also renders more cases operable.

There are many hopeless cases in which other forms of treatment give much comfort; however, even in such cases radiation may give temporary relief and increase longevity. A lethal dose cannot always be given, but a sublethal dose will arrest the progress of the growth and produce a fibrosis which will aid materially in controlling the disease. Radiotherapy stops cell proliferation and produces a fibrosis which checks or obliterates the lymphatics. In other words, it changes the entire nature of the tumor by replacing the glandular structure with a fibrous stroma, thereby transforming the neoplasm into a slow growing seirrhus type of malignancy.

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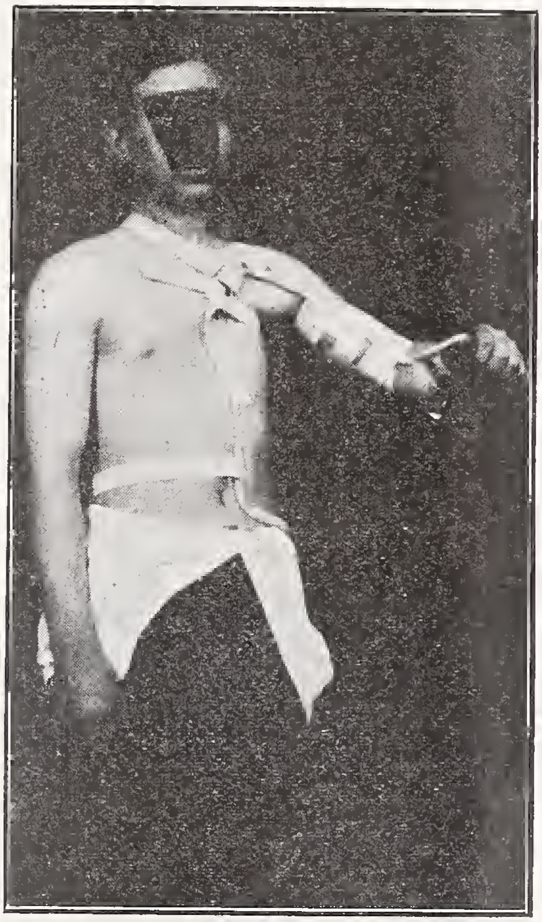
## A NEW ABDUCTION-TRACTION SHOULDER AND ARM SPLINT AND ITS USES.

By R. Wallace Billington, M. D.
Nashville.

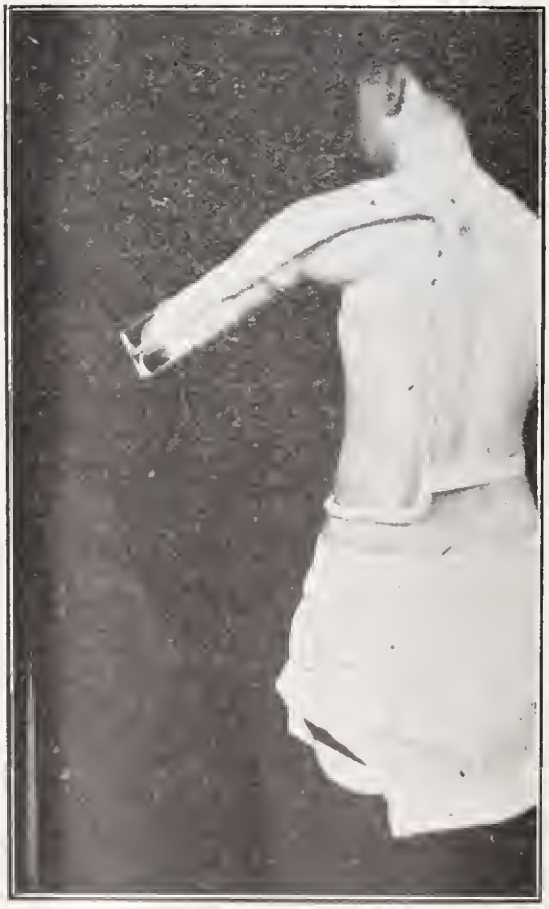
The appliance which I wish to present for your inspection has several features of design and usefulness which I have not seen combined in any other. The idea of using a framework of round iron as its basis I got from a splint which I saw in one of the British Military Orthopaedic Hospitals in 1917, which I believe was called the Lyttler Jones splint. However, it did not have several of the features and advantages of this one.

A great number and variety of shoulder abduction and so-called aeroplane splints have been devised, including the popular model of Sir Robert Jones, who was the early advocate of this principle in the treatment of shoulder injuries. I have seen and used many such models but all of them, I believe, lack some of the important features which I have been able to combine in the one here shown. I have used this in a large number of shoulder and upper arm injuries and diseases, both in military and civil practice since 1917 and a number of my associates in the army and at home have thought well enough of it to adopt it.



The important features of it are:

It is light and comfortable to wear for either bed or ambulatory cases. It is simple and inexpensive, the materials being easily obtainable and anyone with a little industry and a file and monkey-wrench for tools can make one. It will immobilize the shoulder and support the arm in any degree of abduction, forward flexion and eversion and at the same time make efficient, continuous traction. It is easily adjustable to different positions by simply bending the iron rods with a wrench, thus making it useful for gradually increasing the amount of abduction from day to day which is so desirable and often preferable to forcible manipulation of stiff shoulders to help regain abduction movement. The strap over the affected shoulder makes abduction at the scapulo-humeral joint positive by preventing elevation of the shoulder when the arm is abducted from the body. It also makes the necessary pressure downward on the clavicle while the shoulder is elevated in treatment of dislocation of outer end of clavicle. The weight of the arm is carried by counter pressure at the side of the pelvis instead of against the lower ribs and soft tissues of the loin as do most abduction splints. This is a very important factor in the comfort of an ambulatory patient. It gives even, comfortable support to the arm and permits effective pressure at any point and in any direction to control position of fragments of fractured humerus. This is done by straps and pads as in the treatment of fractures of femur and tibia with a Thomas splint. When traction on the arm is desired the counter-pressure for this force is taken by the auxiliary strap against the chest wall, which is both comfortable and free from the danger of injury to axillary vessels and nerves. The amount of traction is easily adjusted by this same strap. It is inconspicuous except for the noticeable attitude of the arm, permitting wearing of shirt, collar and coat. Most of these patients are ambulatory at least part of the time and it is a great convenience to be able to go about fully dressed.



Materials: For an adult the framework is made of round-iron, ¼inch by 12 feet (for very heavy ones, 5-16 inch by 14 feet); two or three roller bandages; adhesive plaster; thin felt for padding; three yards of 1¼ or 1½ inch nonelastic webbing or heavy canvas straps with buckles or proper size or, lacking these, strong safety pins.

Construct for right or left side, to fit the individual, though it may later be easily adjusted to any patient near the same size. Beginning about the sacroiliac joint of the affected side the iron rod passes upward to the upper mesial portion of scapula, is bent at right angle with a monkey wrench, passes passes laterally curving slightly to fit contour of scapular and shoulder regions, thence along back of arm at desired angle of abduction and forward flexion to point of elbow; bend at right angle and pass along ulnar border of forearm and hand, there bend again to pass across palm, thence back up the radial border of forearm to elbow; thence along front of arm to front of shoulder joint, there bending slightly to pass to upper portion of sternum; thence down front of trunk to a point about two inches mesial to anterior superior spine of ilium, thence laterally at right angle curving around the pelvis to starting point; thence upward accompanying and strengthening the rod already fitted to back of trunk and arm nearly to elbow. If there is any surplus it is cut off by marking heavily with file and breaking at desired length. A triangular arrangement of the two rods at upper part of back braces the arm portion and adds stability.

The overlapped rods from lower back to elbow are firmly bound together by a one-inch strip of adhesive applied spirally. This gives firm enough union without welding. Pad with felt or several turns of flannel the portions of of the frame at back of shoulder and scapula and around the pelvis. Wrap the padded and other portions of frame with a roller bandage. Three inch-strips of adhesive between the rods form a sling support for arm and forearm as with a Thomas splint.

Two webbing straps connect the front and back portions at the top, one passing over each shoulder, carrying the weight of the frame. Another such strap around the other side of pelvis connects the front and back rods at this level and further fixes the frame to the trunk. A fourth strap connects the front and back uprights, passing under the axilla of the affected side. This one completes the fixation of frame to trunk and takes the counter-pressure against the chest wall when traction is applied to the arm. The frame should fit the body and limb snugly everywhere but not make uncomfortable pressure.

The traction attachment consists of the usual adhesive strips applied to the arm and fixed beyond the elbow to a small piece of thin board attached to the iron at this point, thus holding the olecranon down to within half an inch of this rod while the amount of traction is regulated by tightening or loosening the axillary strap.

The forearm may be left free for movements of the elbow or may be strapped to the splint. It may be shaped to hold wrist in "cock-up" position.

While an expert brace mechanic can turn out a more finished looking appliance his servics are not at all essential. The one here shown I made myself as described and is purposely presented to show it in its simplest form. It is of quarter-inch round-iron, for a medium or small adult, left side.

The conditions for which such a splint is indicated are numerous. Many of them have no doubt already occurred to you. They are:

1. Any wound or infection in or about the shoulder joint which is liable to produce either temporary or permanent stiffness. The attitude of election for a stiff shoulder joint is the attitude of the arm which will give the greatest usefulness of the limb in spite of such stiffness. This should be kept in mind from the beginning of treatment instead of waiting until healing is complete. It is much easier to prevent than correct deformities. Even if stiffness proves only temporary a limb held in mid-position is much more easily and quickly mobolized, thus shortening the period of disability. Gunshot wounds, septic joints, tuberculosis, osteomyelitis, etc., are included in this large group.

2. Dislocation of the outer end of clavicle where elevation of shoulder and downward pressure on clavicle are desired.

3. Fracture of greater tuberosity of humerus where the arm should be held abducted and rotated externally

4. Fracture of the neck of the scapula.

5. Fracture of the anatomical neck of humerus when reduction is not easily maintained in adducted position.

6. Epiphyseal separation of upper end of humerus under similar conditions.

7. Fracture of the surgical neck of humerus. Use right angle abduction and traction.

8. Fracture of upper and middle thirds of humerus, especially where traction is needed, as in spiral type.

9. To help mobilize stiff shoulders following treatment of dislocations, fractures and other injuries in adduction, assisted by physiotherapy.

10. After forcible manipulation of a stiff shoulder.

11. After arthrodesis of shoulder joint.

12. Subdeltoid bursitis. Rest in abduction with physio-therapy will relieve most cases, even where x-rays show calcareous deposits.

13. Obstetrical paralysis of upper arm type, to prevent or correct adduction-inversion deformity and after operation for same, such as the Sever operation.

14. Polio and other paralysis of deltoid, supra- and infra-spinati and teres minor, to prevent stretching of these paralyzed abductors and everters.

I wish to emphasize in conclusion that the position of election for the arm in all injuries and diseases likely to result in either temporary or permanent stiffness of the shoulder joint is abduction 40-50 degrees, forward flexion 30 degrees and external rotation slightly beyond midway. The Mitteldorff triangle and and similar splints fix the humerus in internal rotation and cause serious unnecessary loss of function where permanent stiffness results. Where only temporary stiffness results the position of election during healing will minimize the discomfort and duration of aftertreatment. Dislocation of the shoulder is practicaly the only condition which should not be held in abduction from the beginning.

Our aim should always be to restore the best function possible in the shortest time possible. It is a fundamental principle of orthopaedic surgery. I hope you may find this appliance helpful to this end.

## CANCER.*

By Wm. T. Black, M. D., F. A. C. S.,
Memphis, Tenn.

The subject of cancer has been presented many times in various papers before this association. One would hesitate to again present the subject to you if all was known upon the subject, and if one was not cognizant of the suffering and the heavy mortality of this loathsome disease. If the essential things about cancer were as well known as are the facts about tuberculosis, then there would be less necessity for further literature or propaganda upon this subject. When we consider that cancer deaths are only outnumbered by deaths from cardiac diseases, pneumonia and tuberculosis, then we begin to look upon the subject in its true light, that is, that cancer is a menace to civilization, especially the white race. There are annually dying from cancer in the United States 90,000 persons, and during the two years of war over twice as many people died of cancer as died under arms in the cause of their country.

Cancer is on the increase, but can be largely controlled like other diseases. Some authorities claim that the increase is more apparent than real, that it is not increasing but that vital statistics are better recorded than ever before, that physicians and surgeons are better equipped for their work, and that more microscopical examinations are being done. In addition to this we must not forget that fifteen years has been added to the ordinary span of life since the civil war. You might conclude from the foregoing that the increase is more fictitious than real, but these facts will hardly account for the two and one-half per cent increase in deaths every year from its effects.

The real cause of cancer has never been determined, but we do know that a chronic irritation is an exciting cause. New growths, warts, moles, naevi, as well as tumor formations, chronic ulcerations on any part of the body, are considered pre-cancerous lesions. Any wart, mole or tumor, which increases or changes in appearance or color, should be immediately removed, as they are all potentially cancerous. I have seen several cancers of the face develop from moles, which could easily have been prevented if they had come earlier for treatment. A few years ago a woman was sent to me with a mole (with cancer) just above her left ankle, with a metastasis in her groin, as large as a fetal head. How simple a thing it would have been to have prevented or cured this condition before or during its incipiency. Any ulcer upon the lip, throat or tongue, with a negative Wassermann, which does not heal readily, should be looked upon with suspicion.

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*Read at the annual meeting of the West Tennessee Medical and Surgical Association, at Paris, May, 1921.

Heat, acting as a causative irritant to the development of cancer, is well demonstrated in the Chinaman, as he eats his rice hot, and frequently has cancer developing in his gullet or oesophagus, while his female companion is never thus afflicted, because she has to eat at the second table, and her rice is cold. Another evidence of irritation as a causative factor is found in the frequency of cancer of the stomach. Dr. Mayo states "that hot coffee is a predisposing cause of stomach cancer," and all are familiar with the development of cancer upon the gastric ulcer. It is stated that 30,000 people die from cancer of the stomach annually. It is a well known law that an acid medium is favorable for its development.

In the small intestine cancer occurs only in two per cent of cases of the intestinal tract (due to its alkaline reaction), while the large bowel, with its hardened feces and acid reaction, is involved in 98 per cent of the cases of cancer of the intestines. A common mistake in the diagnosis of cancer of the rectum is to attribute the symptoms to hemorrhoids instead of making a thorough examination, which might reveal a condition of malignancy.

The female breast and other female generative organs play their role in the increasing number of cancers. The physician who fails to prove every tumor of the breast about which he is consulted, to be non-malignant, is certainly a curse to the neighborhood in which he is practicing. A tumor no larger than a pea in this region may be carcinomatous; therefore should be excised and examined histologically. The physician who is consulted by a woman regarding any irregularity of menstruation is negligent of his opportunity to do good if an examination is not advised, and especially is this true if the woman is approaching the age of the menopause or is past the menopause. Any woman who has passed this age and who has a uterine bleeding should be considered malignant unless diagnostic measures prove to the contrary. A woman past 35 who has had inter-menstrual bleeding, even if only a stain, after intercourse, douches or exercise, must be looked upon with suspicion and a diagnosis of cancer proven or disproven. Three times as many women as men die from cancer between 35 and 45 years of age. A physician who fails to advise a repair of a lacerated cervix is derelict in his duty. In fact, all women after childbirth, miscarriage or abortion, should be advised to have a physical examination made of the generative organs after three or four months, so as to ascertain whether any laceration or any abnormalities exist. Uterine fibroids have malignancy to occur in them in three per cent of cases, and Bland-Sutton states that after fifty years of age that the per cent increases to ten per cent. Erosions, ulcerations and new growths upon the cervix must be corrected and the incidence of cancer excluded.

I wish to cite a case which came under my observation in March of this year. A woman past forty years of age was admitted to the Baptist Memorial Hospital, with an inoperable carcinoma of the uterus and periuterine tissues. She gave the following history: Less than one year ago she had an amputation for a badly diseased cervix. Suffice it to say that we must accept without cavil that this woman had a carcinoma when her cervix was removed —a deplorable condition, and, I must say, an unpardonable error of the surgeon in not having a microscopic examination made of her cervix. I am glad to say that this could not have happened in two or three of our best hospitals in Memphis today, because it is an established rule of the hospitals that all specimens removed in the operating room must be sent to the laboratory for diagnosis. What a protection this is to the patient!

There are numerous other lesions which could be corrected and the recurrence of cancer reduced by prophylactic measures of which one could speak, but time will not permit. About 95 per cent of cancers of the uterus occur after 35 years of age, but a mistake must never be made by telling the patient that she is too young to have cancer, and putting her off in this manner. When we consider that one person out of ten, and one woman out of eight, dies with a cancer, and that nine out of ten who have cancer die, then and only then can we realize that more propaganda among the laity is necessary to reduce its frequency.

Cancer in the beginning is a local and a curable disease, and if the patient comes early the prognosis is much better for a quick and permanent cure than in tuberculosis and some other diseases which the human family is heir to. A few years ago patients were astounded if you told them you had tuberculosis, but today they are anxious to know the truth, so that proper treatment can be instituted. Today the laity think of cancer like they formerly thought of tuberculosis. They have a horror of anyone knowing that they have a cancer, but physicians should, at least in the early stages of suspicious lesions be perfectly frank to tell their patients the truth and advise them of the impending danger.

While cancer is one of the most fatal maladies, if at all advanced, nevertheless there are many things to its credit, viz., is it not contagious; it is not a blood disease; and it is rarely, if ever, inherited. The mortality from cancer can be greatly reduced by the proper dissemination of knowledge and by the early removal of all cancerous and pre-cancerous lesions, by surgical measures. In the later stages the x-ray and especially radium offer much in the alleviation of symptoms, and in a great many instances a restoration to health.

## THE QUESTION OF THE REMOVAL OF TONSILS.*

By S. M. Herron, M. D.,
Jackson.

The faucial tonsil is a globular mass of lymphoid tissue lying, one on either side of the fauces, in a recess which is formed by the palatal arches. It is composed of diffuse and circumscribed lymphoid tissue; is the largest of lymphoid nodules in the respiratory and alimentary tracts, and differs from the remaining nodules in the extent and complexity of its crypts. The tonsil originally develops from two lobes and fuses into one shortly before birth. Each tonsil contains from ten to twenty crypts which extend deeply into the substance of the tonsil. Practically all of the pathological conditions of the tonsils, with the exception of the neoplasms and certain of the specific infections, are brought about by the peculiar anatomical structure of the crypts, and their tendency to retention of the cellular debris. The crypts are tortuous and deep, extending practically to the capsule. Their walls are held closely together by pressure of the surrounding lymphoid tissue and their openings may be partly closed. The crypts which we see by inspection drain upwards; therefore retaining the debris. Germs from the faucial cavity enter these crypts and there find favorable soil for development. The cryptic epithelium is so thin it gives way and allows foreign particles to enter the main structure of the tonsil. The crypts are of little consequence until after the second year of infancy.

There has been much difference of opinion as to the function of the tonsils, which has finally resolved itself into four main theories.

First, the production of lymphocytes for the blood and from the histologic structure of the tonsil, they play a very important but by no means an indispensable part in this role..

Third, the internal secretion theory, which has never gained much ground, as there has never been a report of a case which showed any change in circulation or any anti-bacterial action, nor the absence of any typical ferment after a tonsillectomy.

Third, the "protection" theory, which tries to prove that the tonsils stop infections of the mucosa of the throat and nares from passing to the lungs which would otherwise result in some respiratory infection. My judgment would be that whether the infection be in the blood stream or mucous membranes, it must depend on the virulence of the organisms at work and the forces of resistance of the individual.

Fourth, as an eliminating organ. This theory was advanced by Ashurst and has no good footing.

The objective physical signs in diseased tonsils are misleading. Often persons having hypertrophied faucial tonsils which might be regarded as diseased will not be subject to attacks of inflammation. Again, very small tonsils readily become inflamed and cause no little trouble. It will be appreciated that the so-called "buried" tonsil, with the very extensive and almost closed supratonsillar fossa extending high into the palate, is much more liable to marked cryptic retention. Acute inflammatory attacks and hypertrophy of these small tonsils are important factors in decreasing the drainage from the crypts; first by adhesions, and second by increasing the depth of the crypts.

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*Read at the annual meeting of the West Tennessee Medical and Surgical Association, at Paris, May, 1921.

The debris found in the crypts is largely cellular, containing also cholesterin crystals, hyaline material and large numbers of bacteria. It is of a cheesy consistency, yellowish white to greenish white, with often a very offensive odor. It may appear at the openings of the crypts and be seen by the most casual observer, or a careful examination of the anterior and supratonsillar fossae with a probe may be necessary to discover it's existence. Many times the tonsil appears normal, yet, when the root of the tonsil is compressed by the wire of the snare during tonsillectomy, large amounts of foul decomposing debris are squeezed from the depths of the crypts and appear on the surface.

It is universally admitted that many systemic infections reach the blood and lymph through the tonsillar crypts, either with or without primary lesions, in the tonsils themselves. The close relationship that often exists between acute articular rheumatism and acute tonsillititis has been observed in many instances. Endocarditis and pericarditis not infrequently follow even mild attacks of tonsillitis. Acute, subacute and chronic parenchymatous nephritis are being recognized as possible sequellae of tonsillar infections. The most convincing evidence we have that the tonsils are among the most important of the primary foci from which systemic infections may take place is derived from the post operative results of tonsillectomy. Joint, heart and kidney lesions often show such marked improvement after this operation as to leave no doubt whatever as to the origin of the infection. This applies to those cases where local tonsil symptoms are absent, as well as those where local symptoms can be demonstrated as for instance, in that form of chronic toxemia or septicemia where there is general malaise, fever and anemia, loss of weight, etc., without local tonsil symptoms. I reiterate that the improvement following tonsillectomy is often immediate and rapid. After other sources as the gastro-intestinal tract. genito-uninary tract, teeth and gums, ears and nasal accessory sinuses have been eliminated, the removal of the tonsils may be advised as a thereaupeutic measure, even when clinical examination fails to show any pathologic condition in them. Marked amelioration or even total subsidence of the infectious process is noted. Tuberculous lesions have been repeatedly found in the tonsils, however statistics show only about 6 per cent. of tuberculous tonsils in those removed.

The local diseases of the tonsils can be summed up as:

1 Acute tonsillitis.
2. Acute follicular tonsillitis.
3. Septic sore throat.
4. Acute suppurative tonsillitis.
5. Peritonsillar abscess.
6. Chronic tonsillitis.
7. Chronic suppurative tonsillitis.
8. Cyst of the tonsils.
9. Calculus.
10. Diphtheria.
11. Tuberculosis.
12. Syphilis.
13. Malignancy.

It is needless to say that the tonsils should be removed in the above conditions after the acute symptoms have subsided, except in the cases of syphilis and advanced malignancy.

I would not consider this paper complete without giving some consideration to the methods of removal of tonsils. In removal of tonsils there are several principles which are of very grave importance.

1. The removal of tonsils "in toto" without injury to the fauces and soft palate.
2. The removal with as little pain as possible, when removed under local anesthesia.

There are almost as many methods for removal of tonsils as there are operators. I believe in the individual operator using the method best suited to him. I use two methods of operation.

The wire snare and dissection method is the one best suited to tonsils which have adhesions, buried tonsils, or very small tonsils. Tonsils which are simply hypertrophied and have no adhesions yield beautifully to the La Force method of removal. With the La Force instrument there is no danger of damage to the fauces, and it is a bloodless operation if carried out properly. I prefer the snare, except in especially selected cases.

There are many who desire to have tonsils removed under local anesthesia, and many other patients whose physical condition warrants their removal under local anesthesia. Our decision in every case for tonsillectomy should be made after due consideration of all conditions present. In many cases of nervous individuals, I only remove one tonsil under local anesthesia and then let the patient return in four to seven days for the removal of the second. The patient is put on less nervous strain and the pain and soreness in the throat is not as much as if both tonsils were removed at the same time. Of course this method has its drawbacks, for if the patient has much pain from the removal of the first tonsil he is very reluctant about the removal of the second. The ill effects of the one remaining tonsil must be forcibly impressed upon the patient.

In very nervous cases I give morphine and, if necessary, atropin. I swab the throat at intervals of five minutes for three applications with a ten per cent solution of cocaine, especially mopping the pharynx, as this area causes the most gagging. Ten to fifteen centimeters of a one-half of one per cent solution of cocaine or procain, with six drops of adrenalin 1-1000, are injected around the tonsils. Much depends upon the amount and technique of injection. Most operators are prone to inject too large quantities of the solution, which, in many cases, causes pressure pain and an increased amount of pain after the operation, especially when not injected in the capsule. It is a well known fact that novocain does not anesthetize a stretching, pulling or pressure pain, but only anesthetizes a cutting sensation. I inject small quantities, one on the posterior side, and one at supratonsillar region, one on the anterior side, and one at the base of the tonsil. These injections should be made in the capsule. I allow from eight to ten minutes to elapse before proceeding with the operation. I prefer local anesthesia in adults, as it lessens the danger of hemorrhage ,and the patient is not subjected to all the dangers of ether. There is no straining of the muscles of the throat from nausea and vomiting, and usually in twenty-four hours the patient has recovered from all inconvenience.

I ask your indulgence only for a closing report of four cases which have come under my observation and treatment.

Cases 1 and 2 are brothers, and came to my office to have their tonsils removed. One boy was eight years old, the other five years. These patients came to the office in February, 1920. Both boys had influenza in December, 1918; both had measles at Christmas in 1919. Inspection of the tonsils revealed them hypertrophied. Both had temperature of 99½. General malaise. On account of the epidemic of influenza and because of their temperature we did not advise tonsillectomy at this time. We gave them thorough purgation, throat mop and spray to use and ordered them to return to the office in four or five days. Subsequent visits showed the temperature to persist. Quinine was given in heroic doses and over a long period with no avail. Their temperature were never normal only for a period of twenty-four hours. Blood test for malaria was negative throughout. Sputum test was negative in both cases. Both cases were sent to internists, who reported negative physical findings. All efforts to reduce temperature were futile. About four weeks later the younger boy came to the office with an acute case of tonsillitis. At this time we had leucocyte counts made on both boys and found the younger with a leucocytosis of 16,000. The patient was put on the usual treatment for acute tonsillitis and in a few days his temperature was reduced to 99 1-5. This proved conclusively that the tonsils were at fault with this boy, and that the removal of the other boy's tonsils would probably relieve him also. Tonsillectomy was advised and tonsils of both boys were removed in five months from first office visit. The older boy's temperature was normal in three days and has remained so since. The younger boy held temperature for ten days and at this time went to normal and has remained so since. These were, without doubt, two cases of general toxemia from the tonsils. We as specialists should not be too prone to lay everything on the tonsils, but after other things have been eliminated, as in these cases, and tonsillectomy relieves, we cannot help but see the wonderful results wrought by this operation.

In conclusion I want to emphasize the importance of urinary examination before operation, even in the very young children. We may examine specimens for months and not find a positive one, but when we catch up one case, we feel that we have been well paid for all the trouble. In the past six months I have caught four cases of nephritis, who came to the office for tonsillectomy. These cases were sent to laboratory, specimens examined and hyaline and granular casts were found. Two of these cases were cleared up in a few weeks and the tonsils were removed with no return of the nephritis. It seems that the tonsils were the cause of the nephritis. One case has never cleared up and will probably never be a well patient. All of these cases were under fourteen years old.

Since reading the report of Dr. S. Lawrence in the October A. M. A. Journal, in which he states that out of 94 consecutive cases which he operated on, he found thirty per cent of the cases to have pieces of the tonsils remaining, I agree with him that every case should be examined in thirty and sixty days after the operation to ascertain if there are any remaining parts of the the tonsil. I now insist that my cases return to the office in thirty days after the operation for an examination. I have many cases to come to my office who have previously had tonsillectomies. These cases may complain of soreness on one side or the other, or both sides. Seemingly the operation may be a clean one, but on pulling the fauces back and giving a closer inspection, we are able to find pieces of tonsils. The patient is given relief in every case by removal of these parts. With the facts held constantly before us, it behooves us to use all care in our operations not to leave any tonsil or damage the fauces.

In the past twelve months I have had three cases to come to the office with enlarged thyroid glands who have been told by noted surgeons that they had goitre and a removal of the gland was necessary. After careful examination by internists and all laboratory tests were made, it was found that the enlargement was due to a toxin from the tonsil. Two of these cases I operated on and their symptoms were entirely relieved; the third case passed from my observation. In my opinion there are entirely too many thyroid operations for conditions that could be relieved with less damage to the patient.

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## SOME CLINICAL TYPES OF GOITRE AND THEIR TREATMENT.*

Benjamin I. Harrison, M. S., M. D., F. A. C. S.,
Knoxville, Tennessee.

In the amnesis of the goitre patient it is necessary to take into consideration all of the many factors which enter into the formation of the picture presented by the different recognized clinical types. With one exception, all clinical types are influenced according to their geographical distribution. This exception is the exopthalmic type, which is influenced very little, if any, by geographical location. In Switzerland, where one sees so many cretins and tumorous enlargements of the thyroid gland, a comparatively small percentage of the exophthalmic type is found. On the other hand, however, it is true that around our Great Lakes Basin a large number of exophthalmic goitre cases are seen together with those types that are influenced by geographical location. In the eastern section of Tennessee, the exophthalmic type as well as the tumorous enlargements of the thyroid exist.

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*Read at the Loudon County Medical Society, January 9, 1922, at Lenoir City, Tenn.

A discussion of the recognized clinical types of goitre include the following:

(1) Colloid.
(2) Adenoma.
(3) Malignant.
(4) Exophthalmic.
(5) Cretinism.
(6) Thyroiditis.

**Colloid Goitre.**—In this type of goitre the primary factor of importance is the geographical locality, as colloid goitres are influenced more by geographical location than any other type. Colloid goitres most commonly appear at the adolescent period of life and predominate in the female. The gland generally presents a symmetrical, soft enlargement, gradual in growth, and if not controlled by iodine, the enlargement may develop to the point of producing an unsightly tumor of the neck and at the same time perhaps, cause symptoms of pressure on the trachea, that is a cough, and difficulty in breathing. By the early administration of iodine in small amounts the development of colloid goitre can be controlled. If the colloid gand is not subjected early to the iodine treatment, then it may be necessary to remove a portion of this enlargement of the thyroid gland on account of pressure on the trachea or for cosmetic reasons.

**Adenoma.**—In the adenoma type also, geographical distribution plays an important part, but unlike the simple colloid goitres, the adenomata do not respond so well to the administration of iodine.

All non-malignant tumors, with the exception of localized abscesses of the thyroid are classified as adenomata. Adenomata may vary in size and number. The symptoms are those referable to the mechanical pressure of the tumor itself on the trachea or the disfigurement of the neck as seen in the pendulous types of goitre. The growth of the adenomata may be slow, progressive, with an interrupted period, later continuing its growth, or there may be a sudden marked enlargement of an adenoma in the thyroid gland accompanied by a sharp stinging pain, at times producing alarming pressure symptoms. This type of sudden enlargement is the result of a hemorrhage into an adenoma, generally receding with the absorption of the blood clot. If the adenoma is small, it may only present the objective symptoms of a disfigurement of the neck. Frequently, however, the adenomata are large and produce symptoms of mechanical disturbances, that is, difficulty in the exchange of air produced by the pressure on the trachea. The enlargement may even extend around behind the trachea, or it may extend below the sternum, in the latter case, producing a substernal goitre.

The substernal goitre should be recognized early and removed before it has attained dimensions that limit the opportunities for complete relief. Before a surgical removal, substernal goitres should be accurately outlined by percussion and studied by the roentgen-ray to determine their size and location. Large adenomata of the thyroid gland in this frequently produce pressure on the trachea or recurrent laryngeal nerves. Pressure on the laryngeal nerves may cause a partial paralysis of the vocal cord, which in turn gives the patient a husky voice. This partial paralysis of the vocal cord improves with removal of the pressure.

In certain long standing adenomata of the thyroid gland a definite myocarditis is seen. This myocarditis has been confused with the type of heart as seen in the exophthalmic goitre, while certain adenomata with myocarditis have been erroneously classified as toxic goitres. The long standing adenomata of the thyroid gland that present evidence of damage to the muscle of the heart are considered as adenomata with myocarditis. On the other hand, certain adenomata that develop signs of hyperactivity of the thyroid gland, namely, tachycardia, increase in appetite, loss of weight, nervousness and irritability are classified as exophthalmic goitres and not as adenomata that are producing toxic symptoms. In the type of case that has myocarditis as the result of a degenerating adenoma of the thyroid, the myocardium improves following the removal of the adenoma. In the extreme cases where oedema of the ankles is present and broken compensation is evident, the amount of improvement will not be as great as where the destruction of the myocardium is not so far advanced. In other words the causative factor of the myocarditis is eliminated. Following this the myocardium will repair itself correspondingly to the degree of existing damage. Adenomata of the thyroid gland are purely a surgical problem, not being amenable to medicinal or x-ray treatment.

**Malignant Goitre.**—In considering malignancy of the thyroid gland it is of primary importance to recall that all carcinomas of the thyroid gland begin in an adenoma. Approximately two per cent of all adenomata of the thyroid develop malignancy.

Malignancy of the thyroid may present itself at any age, but most generally occurs between the ages of forty and sixty. A history of a long standing adenoma, large or small, with a sudden increase in growth, hard on palpation, with perhaps a history of sharp, shooting pains, radiating towards the ears, is very suggestive of malignancy. This type demands immediate surgical consideration.

**Exophthalmic Goitre.**—Clinically, this group presents itself as a syndrome of increased body metabolism, varying only in degree from the very mild to the extreme syndrome. All ages are affected. The onset may be sudden with rapidly progressing symptoms and a quick damaging of the vital organs; or, on the other hand, the onset may be gradual with slowly progressing symptoms, so slow at times that it is not recognized except by one especially trained to be on the lookout for this disease; one that recognizes the disease in its infancy before the vital organs have been irreparably damaged. It is at such a time that a patient obtains the maximum benefit by the removal of a portion of the thyroid gland.

Many factors enter into the creation of this excessive drive of the human mechanism which produces the hyperactivity of the thyroid gland resulting in the syndrome as termed exophthalmic goitre. Among the principal factors for consideration are mental influences such as fright resulting perhaps from a serious accident; fear stimulated through thoughts of some one dear in danger; or worry as caused by financial difficulties. Other influences are acute and chronic infections, such as tonsillitis, alveolar abscesses, sinus infections, tuberculosis, etc. All these factors are of primary importance in the chain of stimuli acting as a predisposing foci. For illustration, a history of fever, fright, worry or an infection followed by an increase in appetite, loss of weight, tachycardia, shortness of breath on exercise, pounding of heart, bulging of the eyes, tremor and irritability, present a typical picture. The physical signs are clean cut in well-defined cases and vary in degree to the severity of the disease.

The outstanding systems and signs for special analysis in the exophthalmic type of goitre are the thyroid gland, the heart, the eyes, the respiratory system, the muscular system, the mental system, the gastro-intestinal tract and the skin.

On examination of the thyroid gland there may or may not be a palpable increase in its size. Most generally there is a definite increase. The gland in the great majority of instances shows a marked increase in vascularity as evidenced by thrills and bruit, which are best elicited over the superior thyroid arteries. On the other hand the gland may be firm, not showing evidences of increase in vascularity. This latter type of gland is observed in cases of long standing duration or in cases that have been given iodine, thyroid extract or have been subjected to x-ray expesures. The enlargement of the gland may be noticeable before accompanying symptoms present themselves, or the symptoms, namely, irritability, nervousness, palpitation of the heart, loss of weight, may exist previous to the enlargement.

Tachycardia is one of the most common signs. At first this may be on exertion only. If the disease develops unarrested the heart will increase in rate and force until a distinct pounding is noticeable to the patient and visible to the observer. The heart enlarges, especially the left heart, together with a widening of the aorta. Very frequently systolic murmurs can be auscultated. The systolic blood pressure is increased and the diastolic is decreased. In the severe cases, myocarditis and a resulting decompensation may develop, producing a general water logging of the tissues. It is previous to this stage of broken compensation that the maximum benefit is derived from the partial removal of the thyroid gland.

Exophthalmus is one of the classical symptoms although it may not be present. When it appears it generally does so bilaterally, but may affect one eye only. At times it is marked, so much so, that it becomes annoying through the inability of the eye lids to completely cover the eye balls.

Alteration in the voice is not an uncommon occurrence. This is due either to a mechanical pressure on the trachea or an interference with the recurrent laryngeal nerves. An increased respiratory rate is frequently seen. This elevation of the respiratory exchange is a physical manifestation of the increased metabolism.

Tremor in this disease is an important diagnostic sign. It is best elicited by observing the extended fingers, although it may be seen in other parts of the body such as the eye lids, tongue and the lower extremities. As observed in exophthalmic goitre, the tremor is fine and not coarse. In advanced cases muscular weakness commonly occurs especially where pronounced emaciation is present.

Exophthalmic goitre produces an instability of the mental equilibrium of the individual. These patients are easily excitable, irritable, frequently crying or complaining of restless nights broken by bad dreams. In extreme cases delirium and coma may develop.

Further evidence of excessive body metabolism is an increase in appetite and a loss of weight, which are early and constant observations. The loss of weight may be continuous or there may be a period in which a gain is made, then a loss, corresponding to the cycles of increase in metabolism, so characteristic of this disease. In the extreme stage, cachexia of a severe degree is often seen. If the disease progresses unarrested, the vital organs, such as the liver, muscles and bones are utilized by the metabolic increase. In an acute crisis, vomiting and diarrhoea frequently occur as the result of dehydration of acidosis.

The skin may be thin, moist and reddish as seen in the early stages of the disease, or the skin may be thick, with bronze pigmentations, not unlike the skin seen in the myxoedema patient. This latter type is characteristic of the long standing hyperactive thyroid gland, not unfrequently termed "burned out" gland. The thyroid gland in this type on palpation is firm and as a general rule not extremely large.

There are certain diseases presenting symptoms so closely interlaced with exophthalmic goitre that a differential diagnosis at times proves very difficult. In these border line cases especially is it necessary to make a thorough study of all predisposing stimuli that might act as a causative factor. There may be loss of weight and an increased appetite, together with nervousness, the primary cause of which is tuberculosis. It is in this border line type of case that adrenalin sensitisation tests and the basal metabolism studies are of great value. Tuberculosis and exophthalmic goitre are not infrequently seen together and should be recognized as such and treated accordingly. The blocking of an excessive metabolism in tuberculosis such as is accomplished by the removal of a portion of the hyperactive thyroid gland, furnishes the patient with just that much extra reserve in fighting infection and may prove the determining factor in checking the disease.

**Crentinism.** Contrary to the exophthalmic group, cretinism is influenced by geographical location. There is no difficulty in diagnosing cretinism. The point of interest is the treatment which consists of the well regulated administration of the active principle of the thyroid gland.

**Thyroiditis.** Acute inflammations of the thyroid gland as a general rule follow a systemic infection such as typhoid fever. The infection may be confined to a cystic portion of a degenerating adenoma, or it may involve any portion of the thyroid gland. At times it is very difficult to differentiate the acute infections of the thyroid gland from a malignant condition. In acute infections the treatment is systematic. Infected cysts should be evacuated and the causative organism isolated. Infections producing an increase in the size of the thyroid gland and resulting in alarming pressure symptoms should be treated surgically. In surgical procedures upon the thyroid gland during an acute infection great care should be exercised in protecting the mediastinum by first draining, if present, abscesses, then later, if necessary, a more radical procedure.

## Summary.

Goitres are most prevalent according to the geographical location. It is an established fact that this principle applies to all types of goitre except the exophthalmic group.

The medicinal treatment of outstanding value is the prevention of goitre by iodine administration during certain periods of life. The administration of iodine is contra-indicated in the exophthalmic group.

Of all adenomata of the thyroid gland approximately two per cent develop malignancy.

With the present day development in the treatment of goitres that have advanced to the stage of producing either local or systemic symptoms, surgery offers the best results. The greatest benefit in the adenoma group is derived by their early removal, before irreparable damage has been done to the vital organs. At times for cosmetic reasons an operative procedure is indicated. In the exophthalmic syndrome a removal of a portion of the thyroid gland blocks the excessive metabolism and enables the body to re-establish a normal state of equilibrium.

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Devoted to the Interests of the Medical Profession of Tennessee

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APRIL, 1922

# EDITORIALS

## DR. OLIN WEST.

We are wont to pay too little respect to the living. To give honor to real achievement; to give unstinted praise in unflattering language to real men and real friends while they are still comingling with us is too rarely done. Panegyrics are reserved for the dead. And while these few lines may be in violation of orthodox precedent, they are written not in the sense of an obituary but to give just recognition of the worth of a man as a public officer not only, but as a gentleman, man and friend.

Rarely has a man, to say nothing of a physician, left our state who has been given public recognition of the esteem in which he was held as a citizen, and the value his services have been to the commonwealth, than was given Dr. West on the eve of his departure to new fields of labor. Those that know him best admire him most,—and that is the crucial test of the worth of a man.

Dr. West was born in Alabama and being the son of a Methodist Circuit Rider, whose peripetetic existence makes what may be called home only a temporary abode, the exact place is not known. However, it is generally believed that he was born in Gadsden, Alabama in the year 1874. He graduated from Howard College in Birmingham, Alabama, and came to Nashville in 1894. He entered the Pharmaceutical Department of Vanderbilt University and received the degree of Ph. D. In 1899 he received the degree of M. D. from the Medical Department of Vanderbilt University and located in Nashville to practice medicine. He taught Chemistry and Pharmacy in his Alma Mater for many years after his graduation.

Dr. West's special aptitude was for public health work, and from his humble beginning as small-pox inspector of the Nashville City Board of Health to the Executive Officer of the Tennessee State Board of Health, his career was one of successive promotions. His achievements in the various offices he has held are too fresh in the memory of the physicians of the state to call for any reiteration at this time. Possessed as he is of vision, initiative and untiring energy his success is not to be wondered at. And these very faculties were utilized in no little measure in furthering the success of the Tennessee State Medical Association. To what end and with what success the members of the Association know as well as the writer.

But it is of Olin West, the man, that most should and can be said. It might be summed up in one sentence: He is a man, a gentleman, a husband, father, friend. He has the heart of a child, the sentiment of a girl and is generous to a fault. But with it all he has great intellectual attainments and a rare personality. The American Medical Association, with which he has affiliated himself, entirely unsolicited on his part, is to be congratulated upon the acquisition of such a man as Dr. West. He is possessed of the highest ideals of what the medical profession of this country should be and, backed by great ability and an unsullied character, his presence in the executive force of the American Medical Association will redound to the credit of that institution and to the good of the profession of the United States.

## EDITORIAL.

Aware of the fact that the Tennessee Medical Association and its Journal have been so fortunate during the past eight years as to have for Secretary-Editor a man pre-eminently endowed for the position, his successor aproaches his duties with a full appreciation of the honor, responsibilities and difficulties pertaining to the office, and of his own inexperience and ineptitude for the task. He wishes to bespeak the good offices and kindly indulgence of the fellows of the Association in his endeavor to upbuild the component societies and through them the Tennessee State Medical Association, and asks and hopes that the members will always remember that this

DR. OLIN WEST

is THEIR Journal; and that they will contribute their moral support and mental accomplishments to assure its success.

While the Association does not undertake to sponsor all matter printed in the Journal, so all followers of the Association may not approve of some of the editorial emanations, but they may be certain that the intent is always and entirely for the greatest good for the Tennessee State Medical Association and its organ.

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## OFFICERS OF THE TENNESSEE STATE MEDICAL ASSOCIATION for 1922.

President, Dr. H. M. Tigert, Nashville.

Vice-Presidents: East Tennessee, Dr. H. L. Foucher, Chattanooga; Middle Tennessee, Dr. J. R. Bone, Lebanon; West Tennessee, Dr. Frank Jones, Memphis.

Trustees of the Journal: Dr. J. F. Gallagher, Nashville; Dr. J. B. Gillespie, Covington; Dr. S. H. Hodge, Knoxville (To fill unexpired term of Dr. C. J. Broyles, deceased).

Delegates to A. M. A.: Dr. L. L. Sheddan, Knoxville, Alternate, Dr. J. B. Hoskins, Chattanooga; Dr. J. A. Witherspoon, Nashville, Alternate, Dr. L. E. Burch, Nashville; Dr. E. Dunbar Newell, Chattanooga.

Speaker of the House of Delegates: Dr. H. B. Everett, Memphis.

Secretary-Editor: Larkin Smith, Nashville.

Councilors: First District, Dr. C. P. Fox, Greeneville; Second District, Dr. S. R. Miller, Knoxville; Third District, Dr. W. J. Breeding, Sparta; Fourth District, Dr. Z. L. Shipley, Cookeville; Fifth District, Dr. J. P. Taylor, Wartrace; Sixth District, Dr. W. C. Dixon, Nashville; Seventh District, Dr. M. A. Beasley, Hampshire; Eighth District, Dr. M. S. Herron, Jackson; Ninth District, Dr. E. H. Baird, Dyersburg; Tenth District, Dr. J. L. McGehee, Memphis.

Chairman of Section on Eye, Ear, Nose and Throat: Dr. L. M. Scott, of Jellico, Tenn.

Vice-Chairman: Dr. Louis Levy, Memphis.

Secretary: Dr. J. B. Blue, Memphis.

## RESOLUTIONS IN APPRECIATION OF DR. OLIN WEST.

In the general session at Memphis on Wednesday morning, Dr. J. F. Gallagher moved the adoption of the following resolutions, unanimously seconded by the active body of the Association:

### RESOLUTIONS.

Whereas, Dr. Olin West has resigned his position as Secretary of the Tennessee State Medical Association to become Field Secretary of the American Medical Association; and,

Whereas, Dr. West has served this Association for the past eight years, both as Secretary and Editor of the Journal of the Association; and,

Whereas, For his terms of office the esteem in which he has been held by the members of this Association has been manifested by eight successive elections; and,

Whereas, By his great ability and indefatiguable efforts his services have been of inestimable value to the profession and the people of Tennessee; therefore,

Be it resolved, That the Tennessee State Medical Association in annual convention assembled deeply regrets Dr. West's resignation because it believes that scientific medicine of Tennessee loses one of its greatest assets and inspirations by his leaving the Association and the State; and,

Be it further resolved, That the Tennessee State Medical Association cherishes the hope that he shall meet the full measure of success which he so richly deserves in his new endeavor.

Be it further resolved, That a copy of these resolutions be spread upon the minutes of the Association and that a copy be furnished Dr. West.

W. J. BREEDING, Chm.
R. E. LEE SMITH.
J. F. GALLAGHER.
H. M. TIGERT.

## REPORT OF SECRETARY.

To the House of Delegates:

The condition of unrest and instability which has existed in all the affairs of the whole world during the last five years has had its influence on the medical profession in its every day life and practice. In adidtion to new alignments and adjustments which have had to be made by the profession of medicine in common with all groups, and because of a war which involved and engaged practically all of the nations of the world, and because of the period of reconstruction which necessarily must follow all war, there have been problems peculiar to medicine, and problems involving the interest of all human kind that must be solved primarily by the medical profession, which have engrossed the minds and hearts of our members and of doctors throughout America to such an extent that the work and the welfare of the medical organization have allowed in some measure to lag and to retrogress. There has been evident in many places a spirit of apparent indifference and in other places absolute inactivity has existed in medical societies. Here and there greatly increased interest and greatly enlarged activities have been exhibited by county societies, as for instance, the societies of the two largest counties in the state—the Memphis and Shelby County Medical Society and the Nashville Academy of Medicine and Davidson County Medical Society; the first of which has a paid up membership of 269, while the other has reported 204 members for the current year. Some of our smaller county societies are also deserving of praise for maintaining a full membership and for carrying on with their work as medical organizations.

There are far too many societies, however, which are altogether inactive or relatively so and which need revival and reinspiration for their own sake and for the sake of Tennessee medicine as a whole.

There can be no doubt but that on the whole there has been a lagging of interest and a decrease of activity and a loss of spirit in medical organization, none of which is tremendous in extent but all of which are real, nevertheless. It may be that this is not to be explained on the basis of the unrest and disorganization created by the world war and its sequellae. It may be in our own state that in the mistakes or in the incapacity of your Secretary is to be found a reason, and if so he can only plead that his purposes have been worthy and his effort as earnest and as large as his opportunities have permitted and then accept the burden of whatever blame justly attaches. However, all this may be, I presume here to submit some suggestions which I believe may offer a basis for helpful consideration upon the part of this may offer a basis for helpful consideration upon the House and the members of our Association.

In the scheme of organization in America there is no more important element than the Board of Councilors of our state societies. For several years this board has not functioned as well as it might under favorable conditions. There are several reasons why it has not. One, and the only one to be mentioned, is that the income of the Association has not been large enough to meet the greatly increased expenses that have had to be borne and to provide for the cost of meetings of this Board, nor even for the cost of visits by the individual Councilors to the individual counties of their respective districts. The Board of Councilors is supposed to be the court and the guiding influence of the Society, as well as its greatest provider of stimulus and inspiration. Somehow provision should be made whereby our Board of Councilors will be able completely to fulfill its purpose as intended by our constitution and by our scheme of organization. This can not be done unless the officers first, and the members of our societies will help.

There needs to be awakened a new spirit of "community interest" in our county societies and in our profession as a whole. There is too much individualism and too much thought of self where the interests of the whole should be paramount.

The county society and state society should each have a definite program carrying specific objects to be attained. There are numerous problems, local and general, that may well be attacked and which in their solution may well engage the effort of our every man. To have something definite to do will stimulate the effort upon the part of individuals or upon the part of groups of individuals.

The secretary of this body and editor of its Journal should be one who can so arrange his other duties as to be able to give a very considerable part of his time to the work that must be done by the man who acts in the capacity of Secretary-Editor—which, let me assure you is no small work. The remuneration of this servant of the Association must be larger, unless some exceptional man who needs no money consideration can be secured.

The period of reconstruction in world affairs medical has been unduly prolonged. There are many questions which are agitating the minds of doctors today, but some which loom large will soon dissipate completely if there be upon the part of the profession a rededication to the old ideals of medicine, from some of which there has been a bearing away.

During the year from April 1, 1921 to April 1, 1922, there were 1,566 members enrolled, a reduction of 135 from the enrollment of the preceding year. Four factors operated to produce this reduction in membership: 1. Increased dues. A few men dropped out rather than pay four dollars annual dues. 2. Failure upon the part of county secretaries to report the names of members to the central office. 3. The disbandment of three county societies. 4. Pure and unadulterated carelessness upon the part of individuals who simply neglected to pay annual dues.

The following county societies were reported as actively affiliated last year: Anderson, Bedford, Blount, Bradley, Campbell, Carroll, Chester, Cooke, Crockett, Cumberland, Davidson, Decatur DeKalb, Dickson, Dyer, Franklin, Gibson, Greene, Giles, Grundy, Hamblem, Hamilton, Hardin, Haywood, Hardeman, Henderson, Henry, Hickman, Jefferson, Jackson, Knox, Lake, Lauderdale, Lincoln, Loudon, Macon, Madison, Marshall, Maury, Monroe, Montgomery, McMinn, McNairy, Overton, Obion, Putman, Polk, Rhea, Roane Robertson, Rutherford, Scott, Shelby, Smith, Sullivan-Carter-Johnson, Sumner, Tipton, Washington, Warren, Weakley, White, Williamson, Wilson. Thus it will be seen that 66 of the ninety-five counties had medical societies in 1921.

Hawkins, Morgan and Sevier Counties did not report for 1921.

Benton, Bledsoe, Canon, Cheatham, Claiborne, Clay, Fentress, Grainger, Hancock, Houston, Humphreys, Lawrence, Lewis, Meigs, Moore, Pickett, Sequatchie, Stewart, Trousdale, Unicoi, Van Buren and Wayne, twenty-two have no societies.

Marion County has come into the fold and it is recommended that the issuance of a charter for the Marion County Medical Society be authorized by the House of Delegates.

Fifty-six county societies have reported through their secretaries for 1922, representing fifty-eight counties, Sullivan-Carter-Johnson being combined.

While we have no definite figures at hand, it appears from the published reports of various state examining boards that there has been an unusual member of removals of physicians from this to other states.

Insofar as our advices go, there are not more than one or two counties in Tennessee which are suffering from a lack of doctors. For the first time Tennessee will have three delegates in the House of Delegates of the American Medical Association at the coming St. Louis meeting of that body. The position of a delegate from this organization is a most important position and one to be filled by a man who has a real interest in medical organization and with experience in organizational affairs.

A number of our county societies have lost their original charters. I therefore recommend that action be taken by the House of Delegates to authorize and instruct the Secretary to issue new characters to all the component societies of this Association.

A proposed amendment to the By-Laws was submitted by the Shelby County delegation at the last annual meeting affecting the report of the Nominating Committee and the election of officers. Unfortunately the proposed change in the By-Laws can not be made unless a like change is made in the Constitution, a fact of which none present were mindful when the matter was presented last year. It therefore appears that this matter must be represented and that final action can not be taken until next year.

As will be seen from the report of the Treasurer, the income of the Association for last year was greater than ever before and the balances on hand March 31 the largest balance ever reported. It will also be seen that expenditures exceeded those of the preceding year. There was a decrease in advertising receipts of the Journal to the amount of $348.61.

The cost of the Journal has remained high, but it is believed that a more advantageous printing contract can be arranged for after the contract now in force expires in May.

The Journal has weathered another lean year. Material for making it has been harder to secure than ever before and the time which its editor has been able to give to it has been more limited than previously. The editorship of the Journal involves greater and more arduous labor than any but its editor knows about, largely because many papers presented have to be subjected to great numbers of corrections and all too frequently have to be entirely rewritten.

A balance of $18.00 remaining of the fund raised by subscription at the Knoxville meeting in 1915, has been left on deposit with the Nashville Trust Company to the credit of your Secretary. The interest which has accrued has brought the amount of this fund up to the sum of $21,86 as of October 1, 1921. I present herewith the bank book showing the status of this fund, all expenditures having been reported and accounted for in 1916 since which time none have been made.

In the death of Dr. C. J. Broyles, once president of this Association, and for a number of years one of the Trustees of the Journal, our society suffered the loss of a devoted and earnest worker and very faithful friend. Your Secretary would here make acknowledgement of the debt of gratitude imposed upon him by the many helpful kindnesses shown him by Dr. Broyles, who always responded immediately and cheerfully to any demand made upon him in the interest of this Association.

Eight years ago in this city I was selected to serve as Secretary-Editor of the Tennessee State Medical Association. During those eight years it has been my earnest purpose to measure up as nearly as I could to the ideals of a faithful servant and to hold as high as I could hold them the traditions of our profession. With a full consciousness of my own shortcomings and failures, I have also very clear consciousness of having done the best that I could do. Had no other responsibilities than those of this office rested upon me, I could at least have given more time and more effort to the affairs of the Association, which are important enough and extensive enough to well occupy the entire time and attention of even the most industrious man. My eight years as Secretary-Editor have been full of hard work and have brought many pleasant experiences, as well as many which have been exceedingly unpleasant. These latter, however, are forgotten in the remembrance of the multitudinous kindnesses and the delightful friendships that have come to me and which will never be forgotten. There are points of vantage which will be gained by our Society during these last eight years, some of which have been held and some of which have been surrendered. The enthusiasm and earnestness which characterized the work of some of our component societies for a few years have grown notably less more lately, but, on the other hand, there has been a great growth of interest and a fine spirit of progress manifested in a number of the units of the Association. I can not refrain from referring especially to the remarkable growth of the Memphis and Shelby County Medical Society, its closer affiliation and its wonderful helpful activities in the state organization.

The Tennessee State Medical Association has existed for nearly one hundred years and, with the exception of a short period during the Civil War, has carried on its work continuously. There is a reason for its existence, there is work for it to do; otherwise it would not have survived for nearly nine-tenths of a century. From its ranks have gone out some of the outstanding men in the history of American Medicine. Its own history which ought to be writen and preserved, is a history of honorable achievement. It will not be long until its centennial year will roll round. That year should be marked by a fitting celebration. The full story of our old society should be prepared and presented then. I have indulged in the hope that I might have a part in its preparation and in its presentation, but that privilege is to be denied me. If I may be permitted to offer a suggestion, however, I would suggest that steps be taken at this meeting to arrange for the compilation of the history of this Association for completion to the date of, and for presentation at a great centennial meeting eight years from now, the Association having been organized in 1930.

Membership in this society should be looked upon as a privilege and as carrying with it very definite obligations and responsibilities. when it comes to be so considered by every man of us, its influence will be great enough to secure the full accomplishment of any worthy undertaking in which the society may engage. There is much that can be done for the good of human kind through the agency of the Tennessee State Medical Association and in striving for the promotion of the general welfare, the welfare of our own profession can but be promoted. Spasmodic effort will not avail, temporary rebuff should not discourage. The assumption of the leadership that naturally is ours and a persistent fight to maintain it, through a service that will justly entitle our profession to reassume and maintain leadership, will unfailingly result in good for all mankind. A failure to assert and to exercise the privileges which rightfully belong to definitely and actively to assume the responsibilities which naturally devolve upon us will unfailingly result in injury to our profession and to the general welfare. The ideals of medicine are the highest human ideals and the highest of them all is that which calls for service without selfishness. However well may have measured up to the traditions, it can but be beneficial for us to dedicate ourselves anew to the cause of scientific medicine, personally and individually as well as collectively in our society, with a determination to "hold high the torch" which has been thrown to us to hold by those who have lived and served and died in making the splendid history of medicine as it has been made splendid in this state and in this nation.

In conclusion, I desire to give expression to the gratitude that fills my heart and which will always abide for the very great kindnesses which have been showered upon me during my years of attempted service as Secretary of this Association, and to the hope which I entertain, the realization of which I shall pray for, that to every member of our society and to the society as an organization shall come an abundance of happiness and useful service.

Respectfully submitted, April 13, 1922.

Olin West, Secretary.

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## REPORT OF DELEGATES TO A. M. A.

To the House of Delegates:

As your delegate to the American Medical Association I have the following report to make of the Boston Meeting, June 6th to 10th, 1921.:

The House of Delegates met at the Boston Medical Library Monday morning, June 6th, at 10:00 A. M. and was called to order by the Speaker, Dr. Dwight H. Murray of Syracuse, N. Y. It might be of interest to state that Dr. Murray had been the Vice-Speaker for the three previous years and was elevated to the Speakership when Hubert Work, the Speaker, was elected President of the Association. He was a very capable presiding officer and had done splendid work in New York State before the General Assembly, fighting State Medicine. His recent death is greatly to be deplored.

After the preliminary report of the Committee on Credentials, there being a quorum present, the House was called to order. In his address the Speaker stressed the need of a Public Health Journal. This matter had been before the Board of Trustees at two previous meetings and was a live subject in the House of Delegates. He stressed the need of a connecting link between the medical profession and laity for their enlightenment on medical subjects dealing with preventative medicine, etc. He proposed several methods by which this could be attained. One of his suggestions was that we co-operate with the Public Health Service by the appointment of capable men and specialists in the different districts of the United States who would be called consulting editors. In this way he stated that the press work could be done by the Public Health Service and copies franked to the law making bodies of each state and Members of Congress, to the end that they would be better informed of the needs of the laity and the aims of the medical profession.

The writer was very much interested in the proposal of the Speaker, and talked to some of the older members of the House of Delegates, especially, Dr. Victor Vaughn of Ann Arbor and Dr. Randolph Winslow of Baltimore in regard to the feasibility of doing something at this meeting. They favored the proposition, but did not feel that it had been properly worked out up to the present time.

The Speaker urged that a digest of the principle features of the work of the House of delegates should be presented to the State Associations by the representative delegates so that they might have a better understanding of what was going on in the parent organization and thereby a closer relationship be established between the State Societies and the American Medical Association. He also stressed the recent law enacted by the New York Legislature in regard to misleading advertisements carried in the daily papers in regard to patent medicines. This law went into effect Sept. 21, 1921. Dr. Hubert Work, the newly elected Postmaster-General gave as his opinion that the law was sufficiently broad enough to cover that class of fraudulent advertisements which can not be reached by the Postal Statutes. He further stated it was a good piece of legislation and should have the support of every one in the suppression of ''false and misleading advertisements.''

The House of Delegates was next addressed by the newly elected President, Dr. Wm. C. Braisted. He especially stressed the duty the profession and the public owed to the late General Gorgas to establish a memorial to him in Panama, in the form of a research laboratory for tropical medicine. You all, no doubt, are familiar with what has been done since that time in regard to this memorial to General Gorgas who endeared himself to the people of the entire world.

The President-elect, Dr. Hubert Work, next addressed the House of Delegates. He had several important suggestions for consideration. He was especially interested in the Sheppard-Towner Bill No. 1039 and requested an expression from the Association on this Bill, stating that a memorial to the Senate would appear to be the proper procedure. This matter was later brought up in the House and was fully and freely discussed before a memorial, satisfactory to all parties concerned was adopted.

The death of Dr. Isadore Dyer, Vice-President of the Association, Dean of Tulane University, of whom you all know was brought to the attention of the House of Delegates. Dr. Rudolph Matas, of New Orleans, was elected to fill the unexpired term.

The Committee on Narcotic Drugs of the Council on Public Health and Instruction, appointed a committee to confer with the Attorney General of the United States in regard to removing existing uncertainties in the meaning of the Harrison Narcotic law, and report to the House at its next meetnig.

The subject of State Medicine was again called to the attention of the House of Delegates. It had been freely discussed at the previous meeting at New Orleans and received unanimous condemnation in Boston as it did at the New Orleans meeting. It was specially impressed upon the delegates from the various states to be on the lookout for so-called ''State Medicine'' and State legislation in this respect under other names. This is a menace to our profession and we should see to it that ''State Medicine'' never gets a foothold in Tennessee.

There were many other subjects of importance before the House of Delegates, but time does not permit going further into detail in regard to them. From a scientific standpoint the meeting was a success. Boston and the Boston Medical Association entertained the members of the American Medical Association royally. Dr. de Schweintz was elected president, and St. Louis was selected as the next meeting place. We are very close to St. Louis and I hope that Tennessee will be well represented.

Edward T. Newell,
Delegate, A. M. A.

## REPORT OF COMMITTEE ON SOCIAL OR STATE INSURANCE.

To the House of Delegates, Tennessee State Medical Association,

Gentlemen:

This Committee on Social or State Insurance, having been continued at the 1921 meeting for another year, beg to report that we have been working on this subject to some extent, but the matter not having been actively agitated, there has not been a great deal of interest taken by the profession at large.

Our information is that at this time there has been no legislation passed in this country on this subject. There has been much agitation in several of the states in the north and east along this line, and as legislation of this kind would probably follow the enactment of workmens' compensation legislation, and as most of these states now have workmens' compensation laws it behooves us to be on guard. The Committee believes that the medical profession as a body is opposed to the passing of any such legislation.

The workmens' compensation law is somewhat along this same plan, and inasmuch as the medical profession must come in contact with provisions of this act, we believe it would be proper for the Committee to recommend some changes in this law.

Section twenty-five, which has to deal with the medical expense under the above Act, provides for an expense of $100.00 to cover all medical and surgical attention, including hospital, nurse and drugs, and all else in the treatment of the case. This amount is entirely too small to take care of the more serious cases.

We understand that the industries working under this act will claim they should not be responsible for further protection to the workmen, but if they do not take care of their injured employees it devolves upon the doctor or charity to do so, and in most cases the doctor and charity would be synonymous.

A factory or industry promptly takes care of its broken machinery, and a workman bears the same relationship in the economy of an industry as any other piece of machinery except that he can suffer when injured, and must needs have a doctor, and it places the doctor in an embarrassing perdicament to carry a seriously injured workman half way through recovery and then have the pay stop.

We recommend that the members of each component medical society should be very active and in explaining the necessity of favorable action to their legislators, and when the opportunity arises help to elect only men to office who will assist in such legislation.

We believe this matter should be placed in the hands of a special committee or placed in the hands of the regular Legislative Committee.

The usual unfortunate thing we have to contend with here is we have very little funds available for expenses. This is a matter that should be given serious consideration so that when these emergencies arise we will have the funds with which to carry on the necessary work.

H. B. Everett, Chairman.

## TREASURER'S REPORT.

The summary of the Treasurer's report and an itemized statement of the disbursements by the Treasurer for 1921-22. appears below as authorized and directed by the House of Delegates at Memphis. The long itemized statements of receipts is not published because of the high cost of printing. It will be seen that the report was approved by the Auditing Committee, after which it was received by the House of Delegates and ordered printed in the Journal as it appears below:

### REPORT OF TREASURER.

### 1921—1922.

| | |
|---|---|
| Balance on hand April 1, 1921 | $ 4071 71 |
| Total deposits in bank during year | 10342 69 |
| Interest paid on deposits | 62 90 |
| Total receipts for year | $14477 30 |
| Disbursements as shown by canceled checks returned | 8400 08 |
| Apparent balance | $ 6077 22 |
| Deduct outstanding checks Nos. 37, 38. 39. 40, 41, 42, 43, 48, 49 and 51 | 218 00 |
| | $ 5859 22 |

| | |
|---|---|
| Add $3.08 for which check was issued last year, which was not presented for payment | 3 08 |
| | $ 5862 30 |
| Deduct $184.00 credited in bank hrough error to Dr. Gallahger's personal account | 184 00 |
| | $ 5678 30 |
| Add $184.00 for which Dr. Gallager's check is here attached. | 184 00 |
| Balance on hand March 31, 1922 | $ 5862 30 |
| Advertising receipts | $ 2608 14 |
| Membership receipts (Including Medical Defense sent to Dr. S. R. Miller, Chairman Medical Defense Committee.) $1,087 00 | $ 7734 55 |
| Total | $10342 69 |

## DISBURSEMENTS.

April—

| | | |
|---|---|---|
| 7. | Dr. S. R. Miller, Medical Defense | $18 00 |
| 7. | Cumberland Telephone Company | 7 00 |
| 7. | C. M. McCabe, Postmaster, stamps | 5 00 |
| 11. | Dr. S. R. Miller, Medical Defense | 27 00 |
| 11. | Dr. S. R. Miller, Medical Defense | 41 00 |
| 12. | Dr. S. R. Miller, Medical Defense | 12 00 |
| 14. | Mrs. Hamilton, salary | 37 50 |
| 18. | Dr. S. R. Miller, Medical Defense | 10 00 |
| 18. | C. M. McCabe, Postmaster, stamps | 5 00 |
| 19. | Dr. S. R. Miller, Medical Defense | 2 00 |
| 22. | Ambrose Printing Company | 7 50 |
| 22. | Programs, Rich Printing Company | 89 75 |
| 23. | Dr. S. R. Miller, Medical Defense | 1 00 |
| 27. | Dr. S. R. Miller, Medical Defense | 3 00 |
| 29. | Dr. S. R. Miller, Medical Defense | 1 00 |
| 30. | Katherine Taylor, salary 4-15-5-1 | 37 50 |
| | Total | $304 25 |

May—

| | | |
|---|---|---|
| 2. | Dr. Olin West, On salary | 80 00 |
| 3. | The Whitehead & Hoag Co., badges | 42 53 |
| 3. | W. Otho Beall, reporter | 133 90 |
| 5. | C. M. McCabe, Postmaster, stamps | 5 00 |
| 5. | Rich Printing Co., Journals for April | 328 00 |
| 5. | H. W. Emerson, Supt., rent for April | 15 00 |
| 5. | Cue Hamilton, delivering journals | 1 00 |
| 10. | Cumberland Telephone Company | 7 70 |
| 10. | Miss McNellis, reporting | 28 65 |
| 11. | Dr. S. R. Miller, Medical Defense | 1 00 |
| 12. | Dr. S. R. Miller, Medical Defense | 1 00 |
| 16. | Rich Printing Company, Mdse | 9 75 |
| 16. | Dr. S. R. Miller, Medical Defense | 1 00 |
| 16. | Katherine Taylor, 5-1, 5-16 | 37 50 |
| 20. | C. M. McCabe, Postmaster, stamps | 5 00 |
| 24. | Dr. S. R. Miller, Medical Defense | 21 00 |
| 28. | Dr. Olin West, On Salary | 80 00 |
| 28. | Neil Robinson, Janitor service | 5 00 |
| 28. | Dr. S. R. Miller, Medical Defense | 2 00 |
| | Total | $ 805 03 |

June—

| | | |
|---|---|---|
| 1. | Kathrine Taylor, on salary | 37 50 |
| 3. | Cumberland Telephone Company | 7 50 |
| 4. | Dr. S. R. Miller, Medical Defense | 1 00 |
| 6. | Rich Printing Company, Mdse. | 1 25 |
| 6. | Ambrose Printing Company, Mdse. | 15 00 |
| 7. | Cue Hamilton, delivering journals | 1 00 |
| 7. | H. W. Emerson, rent for May | 15 00 |
| 9. | Rich Printing Co., Journals for May | 320 00 |
| 12. | C. M. McCabe, Postmaster, stamps | 5 00 |
| 15. | Katherine Taylor, 15-1-15 | 37 50 |
| 15. | Dr. S. R. Miller, Medical Defense | 2 00 |
| 16. | Dr. S. R. Miller, Medical Defense | 1 00 |
| 21. | Dr. S. R. Miller, Medical Defense | 6 00 |
| 24. | Dr. S. R. Miller, Medical Defense | 8 00 |
| 27. | Dr S. R. Miller, Medical Defense | 1 00 |
| 30. | Dr. Olin West, on salary | 80 00 |
| 30. | Dr. William Whitford, reporter | 251 84 |
| | Total | $ 790 64 |

July—

| | | |
|---|---|---|
| 2. | Katherine Taylor, on salary | 37 50 |
| 2. | H. W. Emerson, Sept. rent, June | 15 00 |
| 5. | Dr. S. R. Miller, Medical Defense | 1 00 |
| 6. | Dr. S. R. Miller, Medical Defense | 6 00 |
| 7. | C. M. McCabe, Postmaster, stamps | 5 00 |
| 7. | Cue Hamilton, delivering Journals. | 1 00 |
| 7. | Rich Printing Co., June Journal | 320 00 |
| 11. | Cumberland Telephone Company | 7 00 |
| 11. | Dr. S. R. Miller, Medical Defense | 1 00 |
| 13. | Dr. J. S. Ausmus, overpaid | 3 00 |
| 15. | Dr. S. R. Miller, Medical Defense | 1 00 |
| 15. | Kathrine Taylor, 1 to 15 | 37 50 |
| 21. | Dr. S. R. Miller, Medical Defense | 6 00 |
| 25. | Dr. Olin West, on salary | 80 00 |
| 25. | C. M. McCabe, Postmaster, stamps | 5 00 |
| 27. | Dr. S. R. Miller, Medical Defense | 1 00 |
| 29. | Kathrine Taylor, on salary | 37 50 |
| 29. | Cut Hamilton, delivering Journals | 1 00 |
| 29. | Cumberland Telephone Co., (July) | 7 00 |
| | Total | $572 50 |

August—

| | | |
|---|---|---|
| 4. | H. W. Emerson, rent July | 15 00 |
| 4. | Rich Printing Co., Journals | 320 00 |
| 4. | Underwood Typewriter Co., Ribbon, oil | 1 20 |
| 8. | Dr. S. R. Miller, Medical Defense | 2 00 |
| 11. | Dr. S. R. Miller, Medical Defense | 1 00 |
| 11. | Neil Robertson, Janitor service | 5 00 |
| 15. | C. M. McCabe, Pastmaster, stamps | 5 00 |
| 16. | Kathrine Taylor, on salary | 37 50 |
| 20. | (Dr. S. R. Miller, Medical Defense | 13 00 |
| 25. | Dr. Olin West, on salary | 85 00 |
| 30. | Kathrine Taylor, on salary | 37 50 |
| 30. | Franklin Ins. Co., policy on office | 18 00 |
| | Total | $539 20 |

September—

| | | |
|---|---|---|
| 3. | Rich Printing Co., Aug. Journals | 320 00 |
| 3. | Cue Hafilton, delivering Journals | 1 00 |
| 3. | Cumberland Telephone Co., August | 7 00 |
| 6. | Dr.E. D. Newell, Expenses to A. M. A. two years | 100 00 |
| 6. | Dr. L. A. Yarbarough, Expenses to A. M. A. two years | 100 00 |
| 6. | Dr. S. R. Miller, Medical Defense | 1 00 |
| 6. | Dr. S. R. Miler, Medical Defense | 1 00 |
| 8. | C. M. McCabe, Pastmaster, stamps | 5 00 |
| 9. | H. W. Emerson, Supt., rent for August | 15 00 |
| 9. | Dr. S. R. Miller, Medical Defense | 3 00 |
| 13. | Dr. S. R. Miller, Medical Defense | 5 00 |
| 15. | Dr. S. R. Miller, Medical Defense | 3 00 |
| 15. | Kathrine Taylor, on salary | 37 50 |
| 22. | Dr. S. R. Niller, Medical Defense | 1 00 |
| 26. | S. C. Toof & Co., Stationery for Dr W. B. Burns, President | 15 25 |
| 27. | Dr. S. R. Miler, Medical Defense | 1 00 |
| 28. | Katherine Taylor, on salary | 37 50 |
| 28. | Dr. Olin West, on salary | 80 00 |
| | Total | 733 25 |

October—

| | | |
|---|---|---|
| 5. | C. M. McCabe, Postmaster, stamps | 5 00 |
| 5. | Rich Printing Co., printing Journal | 341 70 |
| 5. | Cumberland Telephone Company | 7 00 |
| 5. | Cue Hamilton, delivering Journals | 1 00 |
| 5. | Ambrose Printing Co., Mdse | 12 70 |
| 6. | Dr. S. R. Miller, Medical Defense | 1 00 |
| 15. | Kathrine Taylor, on salary | 37 50 |
| 17. | Dr. S. R. Miller, Medical Defense | 2 00 |
| 25. | Cain Sloan Dry Goods Compony | 4 25 |
| 29. | Dr. S. R. Miller, Medical Defense | 2 00 |
| 29. | Rich Printing Co., Oct. Journals | 368 87 |
| 29. | Katherine Taylor, on salary | 37 50 |
| 29. | Dr. Olin West, on salary | 80 00 |
| 31. | Cue Hamilton, delivering Journals | 1 00 |
| | Total | $901 52 |

November—

| | | |
|---|---|---|
| 1. | McEwin's Laundry, dry cleaning rugs | 3 75 |
| 3. | H. W. Emerson, Supt, rent Sept & Oct | 30 00 |
| 3. | Dr. S. R. Miller, Medical Defense | 1 00 |
| 5. | Cumberland Telephone Company | 7 53 |
| 7. | C. M. McCabe, Postmaster, stamps | 5 00 |
| 10. | Dr. S. R. Miller, Medical Defense | 1 00 |
| 15. | Dr. S. R. Miller, Medical Defense | 1 00 |
| 15. | Katherine Taylor, on salary | 37 50 |
| 27. | H. W. Tmerson, Supt., November rent | 15 00 |
| | Total | $101 78 |

December—

| | | |
|---|---|---|
| 2. | Dr. S. R. Miller, Medical Defense | 1 00 |
| 2. | Katherine Taylor, on salary | 37 50 |
| 3. | Rich Printing Co., Nov. Journals | 320 00 |
| 6. | Dr. Olin West, on salary | 80 00 |
| 6. | Cue Hamilton, delivering Journals | 1 00 |
| 8. | Cumberland Telephone Company | 7 74 |
| 9. | C. M. McCabe, Postmaster, stamps | 5 00 |
| 10. | Neil Robertson, Janitor Service | 5 00 |
| 10. | Katherine Taylor, Commission on Adv. | 15 87 |
| 23. | Katherine Taylor Dec. salary | 75 00 |
| 29. | Rich Printing Co., Dec. Journals | 320 00 |
| 30. | Neil Robertson, Janitor | 5 00 |
| 30. | Cue Hamilton for delivering Journals and 50 cents Laundry | 1 50 |
| | Total | $874 61 |

January—

| | | |
|---|---|---|
| 3. | Dr. S. R. Miller, Medical Defense | 27 00 |
| 4. | C. M. McCabe, Postmaster, Stamps | 10 00 |
| 4. | Dr. Olin West, on salary | 80 00 |
| 5. | Dr. S. R. Miller, Medical Defense | 33 00 |
| 5. | Cumberland Telephone Company | 7 10 |
| 11. | Jno. R. Kimie Co., Stationery for Dr. J. B. Blue | 13 50 |
| 11. | Ambrose Printing Co., Stationery | 21 75 |
| 13. | Dr. S. R. Miller, Medical Defense | 20 00 |
| 13. | Dr. S. T. Parker, returned $20.00 Overpaid | 20 00 |
| 13. | Ambrose Printing Company., Membership book | 2 25 |
| 14. | Katherine Toylor, on salary | 37 50 |
| 18. | L. C. Smith, Rubber Keys | 4 00 |
| 24. | H. W. Emerson, Supt.,rent Dec-Jan. | 30 00 |
| 24. | Cut Hamilton, delivering Journals | 1 00 |
| 24. | Dr. J. F. Gallagher, Treasurer honorarium | 100 00 |
| 24. | Dr. S. R. Miller, Medical Defense | 67 00 |
| 24. | Rich Printing Co., Jan. Journals | 320 00 |
| 24 | Dr. S. R. Miller, Medical Defense | 22 00 |
| 25. | Dr. S. R. Miller, Medical Defense | 53 00 |
| 26. | C. M. McCabe, Postmaster, stamps | 10 00 |
| | Total | $879 10 |

February—

| | | |
|---|---|---|
| 1. | Dr. S. R. Miller, Medical Defense | 174 00 |
| 1. | Cumberland Telephone Company | 7 70 |
| 2. | Katherine aylor, Jan 15-Feb. 1, | 37 50 |
| 2. | Dr. Olin West, on salary | 80 00 |
| 7. | C. M. McCabe, Pastmaster, stamps | 10 00 |
| 8. | Dr. S. R. Miller, Medical Defense | 53 00 |
| 9. | L. C. Smith & Bros., Typewriter | 64 90 |
| 16. | Dr. S. R. Miller, Stationery | 22 34 |
| 16. | Ambrose Printing Co., Stationery | 9 25 |
| 16. | Dr. S. R. Miller, Medical Defense | 91 00 |
| 16. | Katherine Taylor, on salary | 37 50 |
| 17. | Dr. S. R. Miler, Medical Defense | 3 00 |
| 21. | Dury & Co., Rubber stamp and ink | 1 00 |
| 22. | Ambrose Printing Co., Membership cards | 7 50 |
| 23. | Braid Electric Co., Light | 2 47 |
| 23. | Mrs. Alice Byrd, Multigraphed letters, Dr. Blue, Memphis Tenn., | 2 50 |
| 23. | Dr. J. B. Blue, Pastage | 2 50 |
| 27, | Dr. S. R. Miller, Medical Defense | 10 00 |
| 27. | Dr. S. R. Miller, Medical Defense | 1 00 |
| 27. | Dr. S. R. Miller, Medical Defense | 5 00 |
| 28. | C. M. McCabe, Postmaster, stamps | 10 00 |
| 28. | Dr S. R. Miler, Medical Defense | 5 00 |
| | Total | $636 46 |

March—

| | | |
|---|---|---|
| 1 | Dr. S. R. Miller, Medical Defense | 1 00 |
| 2. | Katherine Taylor, Jan.15-Feb. 1, | 37 50 |
| 2. | Dr. West, on salary | 80 00 |
| 2. | Rich Printing Co., Feb. Journals | 356 03 |
| 2. | Cue Hamilton, delivering Journals | 1 00 |
| 2 | Dr. S. R. Miller, Medical Defense | 13 00 |
| 2. | Dr. S. R. Miller, Medical Defense | 13 00 |
| 4. | Dr. S. R. Miller, Medical Defense | 7 00 |
| 4. | Dr. S. R .Miler, Medical Defense | 3 00 |
| 7. | Dr. S. R. Miller, Medical Defense | 2 00 |
| 7. | Dr. S. R. Miller, Medical Defense | 44 00 |
| 7. | Dr. S. R. Miller, Medical Defense | 1 00 |
| 8. | Dr. S. R. Miller, Medical Defense | 1 00 |
| 8. | Dr. S. R. Miller, Medical Defense | 7 00 |
| 8. | Dr. S. R. Miller, Medical Defense | 11 00 |
| 9. | Dr. S. R. Miller, Medical Defense | 6 00 |
| 9. | Dr. S. R. Miller, Medical Defense | 2 00 |
| 10. | Dr. S. R. Miler, Medical Defense | 8 00 |
| 14. | Katherine Taylor, on salary | 37 50 |
| 14. | Mr. H. W. Emerson, rent for February | 15 00 |
| 14. | Dr. S. R. Miller, Medical Defense | 50 00 |
| 16. | Dr. S. R. Miller, Medical Defense | 26 00 |
| 17. | Dr. S. R. Miller, Medical Defense | 1 00 |
| 18. | Dr. S. R. Miler, Medical Defense | 1 00 |
| 20. | Dr. S. R. Miller, Medical Defense | 5 00 |
| 21. | Dr. S. R. Miler, Medical Defense | 3 00 |
| 21. | Dr. S. R. Miler, Medical Defense | 8 00 |
| 24. | Dr. Olin West, Balance due on salary | 195 00 |
| 25. | Rich Printing Co., March Journals | 370 22 |
| 25. | Mr. C. M. McCabe, Pastmaster, stamps | 10 00 |
| 27. | Cue Hamilton, delivering Journals | 1 00 |
| 28. | Dr. S. R. Miller, Medical Defense | 11 00 |
| 31. | Dr. Olin West, Expenses to Memphis to arrange for annual meeting | 24 00 |
| 31. | Katherine Taylor, on salary | 37 50 |
| 31. | Dr. S. R. Miller, Medical Defense | 89 00 |
| | Total | $1477 83 |

Respectfully Submitted,

J. F. Gallagher.

Examined and Approved:

Frank D. Smyth, Chairman.

Robt. Caldwell,

R. E. Lee Smith,

Auditing Committee.

## REPORT OF THE COMMITTEE ON CONSERVATION OF VISION.

To the House of Delegates, Tennessee State Medical Association:

The Committee on Conservation of Vision made a report last year embodying certain recommendations, and a new committee was appointed. We realize that there is an important public service that might be rendered by this Committee, but it is not an easy problem to handle for two reasons. One is the expense involved. It will be seen that to carry out the ideas we have in mind would involve considerable expenditure under several heads. Without an analysis of these items we feel that it can be safely said that it would far exceed the resources available in this Society for such a purpose.

The second reason is a corollary of the first, and that would be the difficulty of securing workers unless they can be paid. If the work is done by local men it arouses antagonism on the ground that the participants are using the work as a means of advertising themselves. To import workers is expensive, to use lay workers is not satisfactory unless they can first be trained, which seems hardly practicable. It seems best to us, therefore, to suggest agencies already in existence, namely, health boards, that the work be placed in their hands.

In regard to the sort of work that should be done we suggest the following:

1. Every child on entering school, and thereafter at the beginning of each school year, should have the vision tested and recorded. We know this has been recommended and in some way put in practice, but it is not thoroughly done and records are not kept, nor will they be kept until regular inspections are made to see that they are being kept. This testing should be done by the teachers.

2. An effort should be made to teach large groups of industrial workers the principles of protecting the eyes and of first aid. This could be done by illustrated lectures, or by placards and bulletins. Either way is expensive, but could be handled by some agent of the health boards. Efficient co-operation could be secured from industrial insurance companies. In the case of large plants they might undertake the whole thing. This should cover protection of the eyes in welding, etc., and also in occupations like saw filing and emery wheel work.

3. Each year some object of general interest in regard to the eye should be presented to the general session of the State Medical Association. Especially should such diseases as ophthalmia neonatorum, trachoma, glaucoma and other common eye injuries be considered.

4. Physicians are not sufficiently informed or impressed with the attitude which they should assume towards opticians, by whatever high sounding title they seek to practice medicine without the proper training required by law. It is unfortunately true that physicians patronize these people themselves and refer others to them, without, we feel, a realization of the affront they hereby offer to other physicians, who specialize in eye diseases, including errors of refraction, nor of the harm they do by encouraging other people to trust the vital matter of the eyesight to unqualified persons.

5. We respectfully request that this committee be discharged, unless means can be provided for them to carry out a program. If the House of Delegates approves of the above suggestions, we would be glad to see these matters brought to the attention of the health boards, the industrial insurance companies and the county medical societies.

Respectfully Submitted,
E. C. Ellett, Chairman.
William S. Wood,
S. T. Hubbard.
Committee.

## REPORT OF COMMITTEE ON MEDICAL DEFENSE.

To the House of Delegates,
Mr. Chairman and Gentlemen:

Your Committee on Medical Defense submits herewith the eighth annual report of this feature of the Association's work.

In the calendar year of 1921 defense fees were paid by 1195 members, and twenty-seven dollars have been received in this calendar year to be credited on last year, making a total of 1222 for 1921, which was 89 less than 1920, which was our highest number.

To April 1st this year, we have received fees for 947 members, which is 33 more than the same date last year. A detailed report for 1920 and 1921 and to April 1st, 1922 for each county is herewith submitted as Exhibit A, and the report of the Treasurer as Exhibit B.

We reported a year ago twenty-seven suits at issue or unreported ended. Further information concerning two cases reported just before making last report caused us to refuse to accept these cases, for the reason that the doctors had not paid any medical defense fee for the period of the alleged malpractice.

Since our last report nine suits have been instituted, and three "threats" have been reported. Two of these "threats" have been permanently dropped. In one of the two the plaintiff died, and on account of application of the employees compensation act the other was disposed of without suit against the doctor. The third has not yet been finally determined. Thus we have had thirty-four suits at issue since our last report.

Twenty-one of these have been won or finally disposed of, but two are yet on the court dockets. One was won in the lower court and the plaintiff appealed, and one that took a non-suit at trial has been revived thus leaving only nineteen suits disposed of finally. Of these nineteen cases, six were won by jury trial, eleven were disposed of by the plaintiff taking non-suit, by dismissal by court, or voluntarily withdrawing suit, and two were compromised without trial. One of these cases was compromised by the doctor himself, and without the advice of this committee, and one with the committee's advice. The latter case was due to neglect of the defendant to treat the eyes of the new born, in violation of a statute, and as it seemed a judgment would have been inevitable, your committee believed it best for the doctor to secure a compromise, rather than a judgment. He was clearly in error, and rightfully paid for that error. We now have only fifteen suits and one "threat" on the roster as pending or unreported closed. Of these, four have taken non-suits and later revived their suits, and again two of these revived suits were dismissed by preemptory instructions and then appealed to the higher court, while one other case resulted in a mistrial. It is probable that several of these fifteen suits pending will be dismissed or withdrawn without trial.

The work of your committee without a general counsel has been somewhat greater, but is keeping them in closer touch with local counsel and seems to be working out satisfactorily.

Our greatest difficulty is caused by doctors employing their own counsel at large fees before notifying the committee of the suits. This should not be done, as the committee must be allowed to engage and agree upon proper fee with local counsel.

The doctor when sued seems very much afraid of a large judgment and ruined reputation, and while in that state of mind would give a lawyer a deed of trust on all his earthly belongings, which is very unjust to himself. Attorneys fees are very flexible and, if gauged by the large fees paid by wealthy corporations, would be beyond the financial bounds of this Association.

Our cases are not usually very difficult to defend, and with the intelligent and united co-operation of the doctors and their friends, are not unpleasant dirty work.

The best class of attorneys realize that we, as a profession, give freely to the poor, and that these suits are not a luxury heaped upon us, but an injustice and hardship, and are willing to give the best of their services at moderate fees when appealed to properly.

We now have arrangement with regular counsel in several of the larger places to defend our malpractice spits upon terms satisfactory to the Committee and the counsel, and we hope to continue such arrangements in these places and to add other counsel from time to time as we can do so in the various counties, particularly where a society has large membership.

A good many of the counties have already, by by-laws or resolution, guaranteed the payment of the defense fee of all members, thus securing for them protection from the first to the last day of the calendar year. This simplifies the work of the secretary of the county societies, and the secretary and treasurer of the state society, as the state dues and medical defense fees can be handled together.

Respectfully,
S. R. Miller, Chairman.
H. M. Tigert,
Jere L. Crook,
Committee.

EXHIBIT "A"

## MEDICAL DEFENSE FEES BY COUNTIES FOR 1920-21-22.

| County | 1920 | 1921 | 1922 |
|---|---|---|---|
| Anderson | 11 | 12 | 14 |
| Bedford | 13 | 12 | 12 |
| Bradley | 16 | 16 | 0 |
| Blount | 02 | 22 | 18 |
| Campbell | 24 | 6 | 17 |
| Carroll | 5 | 0 | 0 |
| Chester | 4 | 0 | 0 |
| Cocke | 3 | 0 | 0 |
| Crockett | 0 | 0 | 0 |
| Cumberland | 3 | 2 | 0 |
| Coffee | 6 | 3 | 0 |
| Davidson | 187 | 187 | 161 |
| Dickson | 9 | 8 | 5 |
| Dyer | 21 | 0 | 9 |
| Decatur | 0 | 0 | 0 |
| Franklin | 7 | 11 | 0 |
| Gibson | 21 | 20 | 14 |
| Giles | 4 | 1 | 0 |
| Grundy | 7 | 9 | 0 |
| Greene | 28 | 21 | 0 |
| Hamblen | 16 | 16 | 11 |
| Haywood | 8 | 6 | 9 |
| Hardeman | 0 | 0 | 0 |
| Henderson | 10 | 11 | 7 |
| Hamilton | 92 | 122 | 49 |
| Henry | 1 | 9 | 0 |
| Hickman | 13 | 0 | 7 |
| Jackson | 7 | 7 | 5 |
| Jefferson | 12 | 12 | 0 |
| Knox | 123 | 123 | 113 |
| Lake | 1 | 0 | 0 |
| Loudon | 8 | 9 | 11 |
| Lauderdale | 28 | 18 | 20 |
| Lincoln | 18 | 8 | 0 |
| McMinn | 5 | 9 | 0 |
| McNairy | 15 | 5 | 5 |
| Macon | 7 | 7 | 8 |
| Marshall | 9 | 1 | 0 |
| Madison | 33 | 34 | 29 |
| Montgomery | 10 | 11 | 15 |
| Maury | 35 | 34 | 22 |
| Obion | 88 | 4 | 5 |
| Overton | 6 | 5 | 0 |
| Polk | 10 | 11 | 11 |
| Putnam | 14 | 14 | 13 |
| Rhea | 1 | 2 | 0 |
| Rutherford | 8 | 17 | 17 |
| Roane | 13 | 18 | 16 |
| Robertson | 5 | 12 | 8 |

| | | | |
|---|---|---|---|
| Scott | 10 | 10 | 0 |
| Sevier | 0 | 0 | 0 |
| Shelby | 245 | 222 | 180 |
| Smith | 7 | 10 | 9 |
| Sullivan, Carter & Johnson | 0 | 0 | 0 |
| Sumner | 16 | 18 | 18 |
| Tipton | 27 | 16 | 14 |
| Unicoi | 0 | 0 | 0 |
| Washington | 25 | 25 | 30 |
| Weakley | 14 | 5 | 5 |
| White | 14 | 14 | 11 |
| Williamson | 7 | 6 | 6 |
| Wilson | 3 | 8 | 4 |
| Warren | 3 | 5 | 5 |
| Morgan | 5 | 0 | 0 |
| Dekalb | 4 | 0 | 0 |
| Monroe | 15 | 1 | 13 |
| Claiborne | 0 | 1 | 0 |
| Marion | | | 9 |
| Grainger | | | 5 |
| Totals | 1300 | 1195 | 947 |

## EXHIBIT "B"

To the Members of the Tennessee State Medical Association:

Following is a report of the treasurer of the Medical Defense Committee from April 10, 1921 to April 10, 1922.

| | |
|---|---|
| Balance on March 29, 1921 | $1668.18 |
| Interest to March 30, 1921 | 103.50 |
| | $1771.68 |
| Deposited April 9, 1921 thru April 6, 1922 | 1387.00 |
| | $3158.68 |
| Expenditures— | |
| April 4, 1921-March 30, 1922 | 1642.05 |
| Balance | $1516.63 |
| Expenditures— | |
| March 30, 1922-April 10, 1922 | 108.30 |
| | $1408.33 |
| Deposited April 10, 1922 | 124.00 |
| Balance | $1532.33 |

| | |
|---|---|
| Dr. S. R. Miller | $ 20.00 |
| Gant-Ogden Co. | 71.55 |
| S. R. Miller | 17.00 |
| S. R. Miller | 47.25 |
| S. R. Miller | 3.40 |
| Austin Peay | 250.00 |
| J. W. Staples | 125.00 |
| Trimble & Martin | 125.00 |
| Jackson, Neil & McRee | 125.00 |
| Gates & Smith | 103.75 |
| Jackson, Neil & McRee | 250.00 |
| Tatum, Thach & Lynch | 25.00 |
| Mayfield & Mayfield | 125.00 |
| Jackson Neil & McRee | 250.00 |
| Gates, Smith, Tate & Long | 100.00 |
| James M. Trimble | 100.00 |
| Chas. M. Fain | 5.00 |
| Chas. Sturdivant | 15.00 |
| Dr. R. O. Kibler | 18.75 |
| M. O. Cate | 8.30 |

Respectfully submitted:

Jere L. Crook, M. D.,
Treasurer.

## MEMORIAL.

## DR. BOYD HARRISON.

In the death of Dr. Boyd Harrison, of Loudon, Tennessee, it appears to us that God has thought best to take from us one of his greatest promises. A young man who graduated from the Medical Department of Vanderbilt University last year, and who was at the time of his death completing his internship at St. Thomas Hospital, was indeed a rich promise of the Supreme Being to suffering humanity and to our profession. In his departure from life at such a time, we are once more reminded of the vanity of our desires and made to realize that our books have failed to teach the mysteries of death and that we are not permitted to know why God should cancel such a promise. If it were true that the good die young we could better understand the call for Dr. Harrison.

He was a man of high ideals and clung to them as closely as he did to his own honor and integrity. He professed faith in Christ, and was a member of the Methodist Church. Socially he was a prince among his class, being a member of one of the best fraternities in the University of Tennessee while taking his pre-medical course in that institution, and was also a member of one of the fraternities of Vanderbilt University. While he enjoyed the pleasures of life in so far as they were right, he severely condemned the wrong.

Dr. Boyd Harrison was 26 years of age, a son of Dr. W. H. Harrison, one of Loudon County's older and best known physicians. He was also a brother of Dr. H. A. P. Harrison, who was president of Loudon County Medical Society last year; and in his ambition to follow the footsteps of his father and older brother he was taken from his path of duty at St. Thomas Hospital, March 3, 1922, by an attack of pneumonia.

Be it therefore resolved, That we tender to his bereaved family, especially his father and brother, who are our brother practitioners, our profound sympathy in their sorrow, and that copies of this memorial be sent to them, also a copy be filed as a part of the County Society record, and that a copy be sent to the State Medical Society.

Signed: Loudon County Medical Society,
J. T. Leeper, G M. Hall, T. J. Hickman.
Committee.

## DR. WILLIAM K. LACKEY.

On March 25 Dr. William K. Lackey of Ripley died from cerebral hemorrhage.

Almost since the founding of the county, members of Dr. Lackey's family have been among the leading physicians of this section, and for forty-one years he has upheld his family's traditions and those of his profession.

He graduated in medicine at Vanderbilt University in 1881. He received additional training at other medical centers and has always been an interested student of all things relating to medicine. His technical ability was of the best, and his judgment was exceedingly sound.

Dr. Lackey had the love and confidence of the people to a marked degree. He was highly esteemed by the profession, having been several times president of the Lauderdale County Medical Society, which society he helped to organize.

W. N. SANFORD,
Secretary Lauderdale County Medical Society.

## SECTIONAL SOCIETIES

### THE EAST TENNESSEE MEDICAL ASSOCIATION.

The following letter has gone out to East Tennessee doctors from the Secretary of the East Tennessee Medical Association, which is to meet at Jellico, on May 11-12, 1922.

"Dear Doctor:

"The next regular meeting of the East Tennessee Medical Association meets in Jellico, Tenn., May 11th and 12th.

"We are expecting you to make every effort to be with us and help make this our banner meeting.

"We have one of the best medical societies in the entire Southland, and we cover East Tennessee like the dew.

"We will need some good papers to hold this meeting up to par, so please mail me the title of your paper, and then get busy and write it.

"All East Tennessee physicians are members. Two dollars dues are collected at each meeting, ONLY from those present.

"Yours for a good meeting,

G. VICTOR WILLIAMS,
Secretary-Treasurer."

The physicians of Campbell County are getting ready for a big meeting, if the signs count for anything.

## MISCELLANEOUS

### THE ST. LOUIS SESSION.

The following are abstracts from editorials published in The Journal of the American Medical Association for April 22, 1922.

The splendid cooperation given by the Local Committee of Arrangements for the St. Louis Annual Session to the officers of the American Medical Association is full of promise for a successful and enjoyable meeting. The announcements which appear in this, the St. Louis number of The Journal are further evidence of the excellent work done by this committee in arranging for the Session. The social events include numerous functions during each day of the session and a full program for the entertainment of the ladies during the hours that will be devoted to the section work by the Fellows. One feature is a unique open air opera performance which has been secured especially for the visitors to this session of the Association.. St. Louis is advantageously situated to make the meeting a truly national one. It is a railroad center, easy of access from the North, South, East and West, and the passenger associations have announced special round-trip rates which may be secured on presentation of the usual identification certificate. There need be no fear of hot weather; the temperature in St. Louis in May generally is delightful. The Committee on Hotels announces that the reservations indicate an unusually large attendance. While some of the more popular hotels have made reservations to their capacity, this committee, with the assistance of the Convention Publicity and Tourist Bureau, is arranging so that comfortable quarters will be available for all who attend the session.

The halls and meeting places are grouped about a center located at Grand Avenue and Olive Street. The most distant hall from that point is approximately six blocks, most of the meeting places being within two or three blocks of the center named.

Plans are being perfected to broadcast by radio the music and addresses delivered at the opening general meeting of the Association.—Journal A. M. A., April 22, 1922.

### BULLETINS OF NEW YORK'S MEDICAL CLINICS.

For a number of years in New York, Chicago and Philadelphia, daily or weekly bulletins have been issued listing the clinics at the various hospitals in those cities: thus the clinics are made available to visitors as well as to local physicians who may care to attend them. In New York these bulletins were issued from the New York Academy of Medicine by the "Society for the Advancement of Clinical Study in New York." This organization was originally made up largely of surgeons, and the bulletins listed only the operative clinics. Recently, however, a committee of internists connected with this society began issuing also weekly bulletins giving in detail for the coming week the subjects to be presented in the various medical clinics. The result, we are informed, has been a remarkable stimulation of the men on hospital staffs. Each afternoon from one to three clinics are given at each of the institutions, and they are well attended. It has been interesting to note that it is not alone the well-known men who attract, but also the subject being presented. The practitioner wants help on particular problems, and the programs show him where to go. These bulletins are bringing excellent results in furthering graduate education for the physicians of that community. The benefits will be further extended if a similar cooperation or centralized control can be secured of the graduate medical schools and individual graduate courses available in a great city. The methods followed are worthy of being considered in other cities that also have facilities for postgraduate instruction which are abundant, but which are not available to the rank and file of the medical profession.—Jour. A. M. A., April 22, 1922.

## CURRENT COMMENT.

### Special Rates to the St. Louis Session.

Special rate round-trip tickets to the St. Louis session of the Association have been authorized to the various passenger associations. These rates are available to all members and Fellows of the American Medical Association who present the usual identification certificate, which may be secured by writing to the Association Headquarters and accompanying the request with a self-addressed, stamped envelope. This concession to those attending the convention should stimulate a full attendance. It is advisable for those who contemplate the trip to write promptly for the necessary certificate.—Jour. A. M. A., April 22, 1922.

## FITNESS FOR PREGNANCY OF PATIENTS WITH HEART DISEASE.

A considerable number of women with heart disease either before they became pregnant or in the early months were watched by Harold E. B. Pardee, New York (Journal A. M. A., April 22, 1922), throughout pregnancy. It was early realized that no foundation for a prognosis could be built on a basis of the pathology of the heart. There is an old and revered opinion in medicine that the presence of mitral stenosis is a most serious thing for the pregnant mother, and yet several women with well developed mitral stenosis went through to full term and passed through even difficult deliveries without any sign that the heart was giving way. Mitral stenosis is twice as frequent as aortic regurgitation. The only guide from the heart's pathology is a belief in the relative harmlessness of uncomplicated mitral regurgitation, whether with a slight or a greater degree of enlargement of the heart. All patients who had this condition were well compensated throughout pregnancy and labor. The basis of our grouping of these cases, which follows the general principles of that adopted by the Association of Cardiac Clinics of New York City, is the patient's reaction to exercise. The subjective complaints of the patient as she goes about her ordinary life, and the subjective and objective reactions to a test exercise performed at the time of her visit to the physician, are used for the grouping. The patient's symptoms are ascertained when walking, house cleaning and climbing stairs to find how much she is restricted in her activities by the appearance of shortness of breath or palpitation. She then is made to exercise, standing with feet separated and swinging a ten pound dumb-bell from over her head to as near the floor as she can conveniently reach, repeating the movement about once every two seconds. This swing can can usually be repeated twenty times without any difficulty, but the patient should be carefully watched, and stopped if there is marked flushing or evident dypsnea or distress. A normal pregnant woman can swing a ten-pound dumb-bell twenty times times without distress and with only a slight sense of breathlessness. There will be only slight objective dyspnea, the pulse will accelerate to less than 120 a minute, counting for the first ten seconds only and multiplying by six, and by the end of one minute the respiration will have become normal and the pulse nearly so, the pulse returning quite to its normal level at the end of two minutes. This is a normal reaction to this amount of exercise, for it would not be normal if it resulted from only four or five swings of the dumb-bell. If twenty swings of ten pounds should cause some evident distress, as shown by flushing or an anxious faces, with marked dyspnea and a pulse rate of 25 for the first ten seconds, a rate of 150 a minute, and if the dyspnea and pulse acceleration last more than a minute, and the rapid pulse for two minutes or more, then this reaction should be considered excessive. A moderately increased reaction would lie between these two; but a patient who was stopped after ten swings because of evidences of distress and yet showed a moderately increased reaction should be considered to have an excessive reaction to twenty swings. By combining the patient's symptoms after her ordinary exertions with her reaction to the foregoing exercise test patients have been placed in one of four categories:

Group 1. Patients who were not troubled by what they considered unusal dyspnea or palpitation on exertion before pregnancy, and who did not develop this during pregnancy. These patients showed a normal or moderately increased reaction to the test exercisse.

Group 3. Patients who had been troubled by unusual dyspnea or palpitation on ordinary exertions before pregnancy, and who had noticed an increase of these symptoms during a previous pregnancy or during the present one. These patients showed a moderately increased reaction to the test exercise.

Group 4. Patients who had been troubled by unusual dyspnea or palpitation on extertion before pregnancy, these symptoms having been markedly accentuated during a previous pregnancy or just previous to or during the present one, so that the patient had to remain in bed for a time.

These patients all showed markedly increased reactions to the test exercise. No patients in either Group 1 or Group 2 developed serious signs of cardiac overstrains during lador though some of them were more than slightly incapacited during pregnancy for the ordinary exertions of their lives. The patients in Groups 3 and 4 afforded about the same percentage of serious happenings. The only reason that the three Group 4 patients did not develop serious symptoms of cardiac strain lay in the briefness of the labor. Two were practically precipitate deliveries, while the third patient was given prompt operative assistance as soon as labor set in. Pardee believes that women in Groups 3 and 4 should be allowed to undertake pregnancy only when there was some special reason for having a child or when they are ready to keep themselves under the constant observation of a physician who is accostomed to handling such cases.

---

## BOOK REVIEWS.

CLINICAL ELECTRO-CARDIOGRAPHY, by Frederick A. Williams, B. S., M. D., M. S. in Medicine. Mayo Clinic, Rochester, Minn., Mayo Foundation, University of Minn.

Philadelphia and London, W. B. Saunders Company, 1922.

This is the first book from an American publisher by an American author dealing solely with electro-cardiography, with especial reference to its clinical application.

That there is a demand for such a work is evidenced by its publication and that demand is an indication of advancement in thought and viewpoint of the profession in this country in regard to diseases of the heart. The author stresses the value in the prognosis of heart affections gained in these studies "particularly with reference to abnormalities of the Q. R. S. complex and to negativity of the ventricular T wave in isolated and combined derivations."

Physically, the book is pleasing. The illustrations are excellent and together with the numerous reproductions of graphs, have necessitated the use of a good grade of paper, which adds to the attractiveness of the volume. L. S.

# THE JOURNAL
OF THE
# Tennessee State Medical Association

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OLIN WEST, M. D., Editor and Secretary J. F. GALLAGHER M. D , Associate Editor
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This Association does not officially indorse the opinions presented in the different papers published herein.

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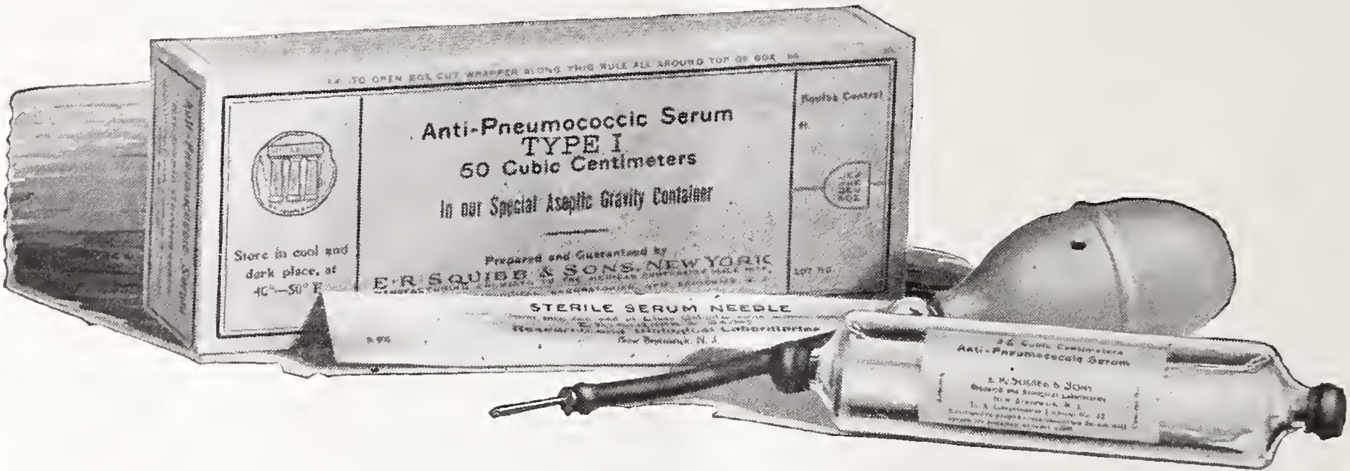
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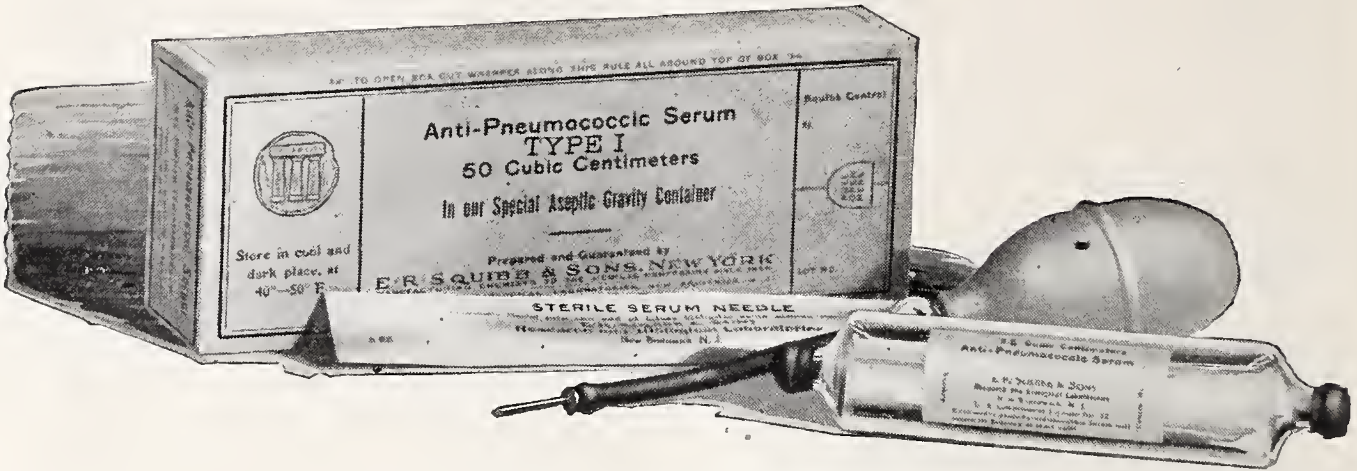
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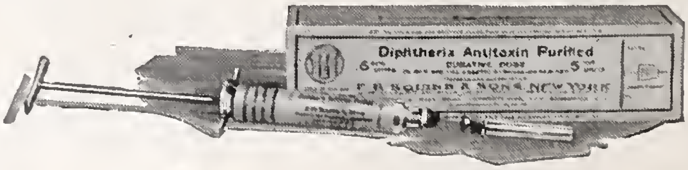

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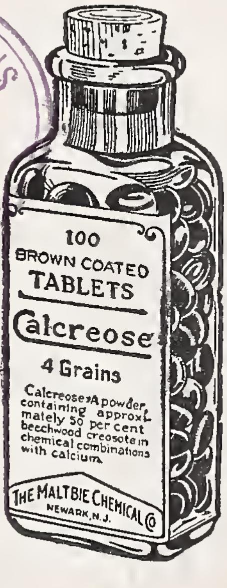
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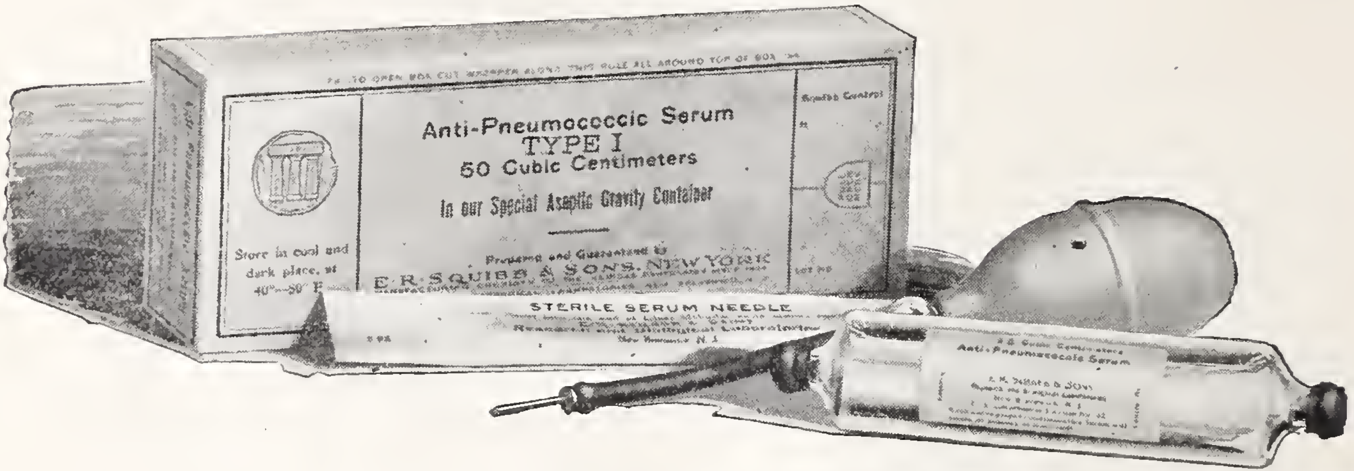
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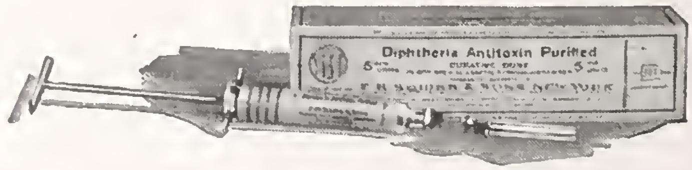

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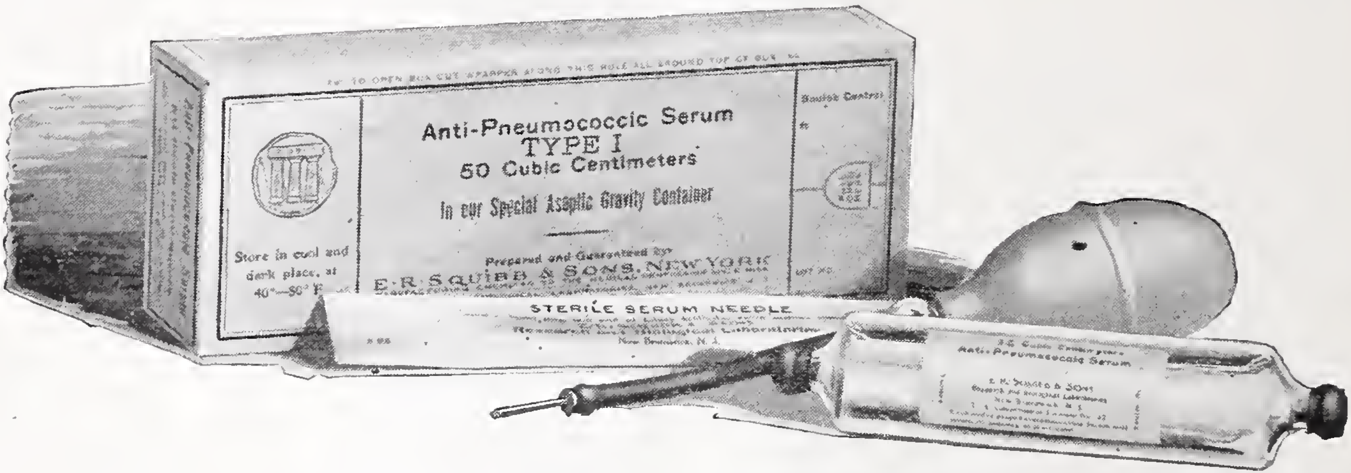
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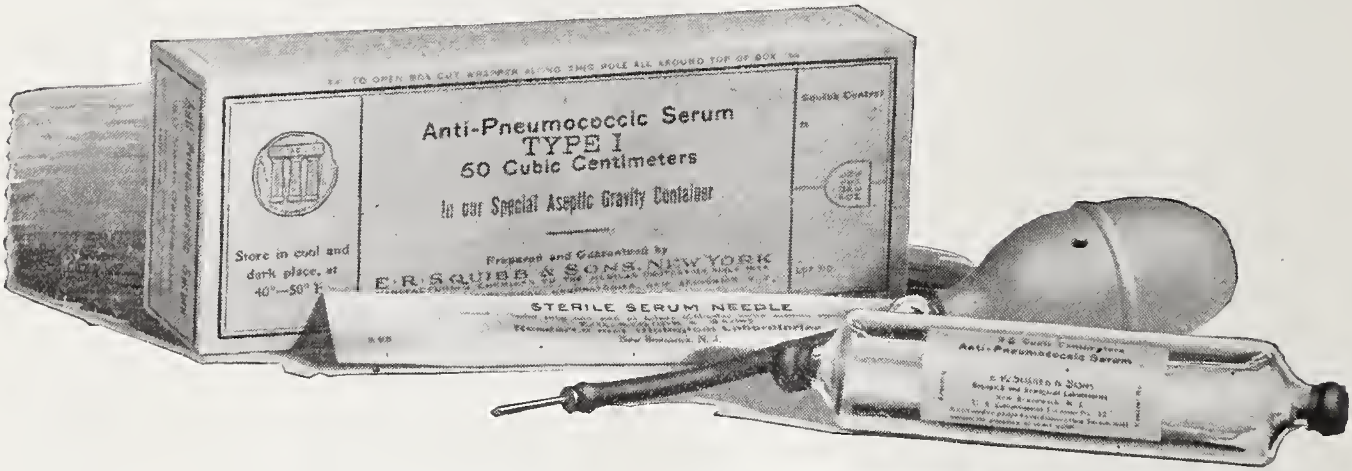
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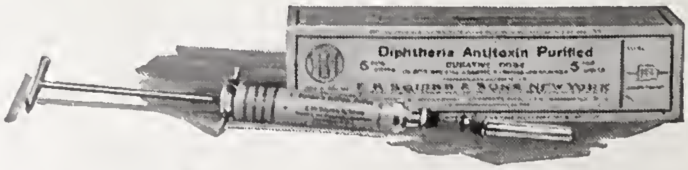

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OF THE
# Tennessee State Medical Association

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OLIN WEST, M. D., Editor and Secretary J. F. GALLAGHER' M. D., Associate Editor
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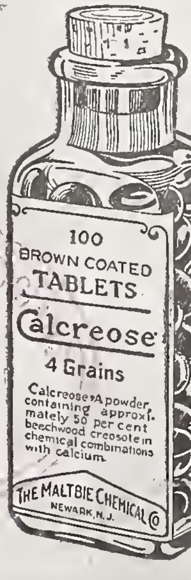
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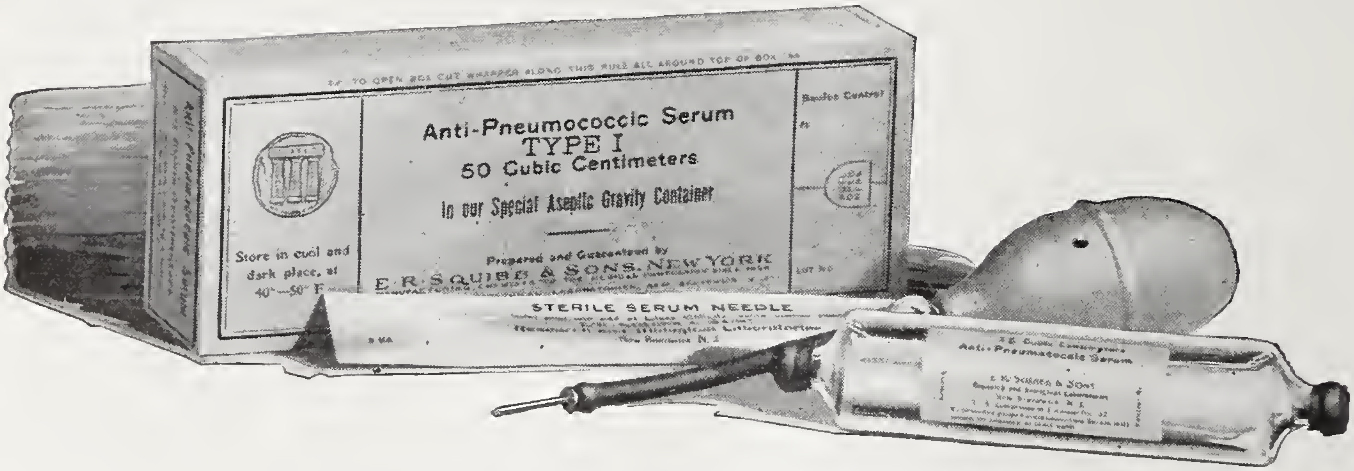
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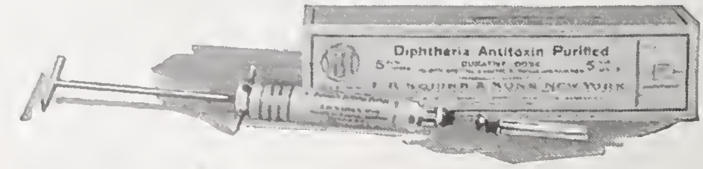

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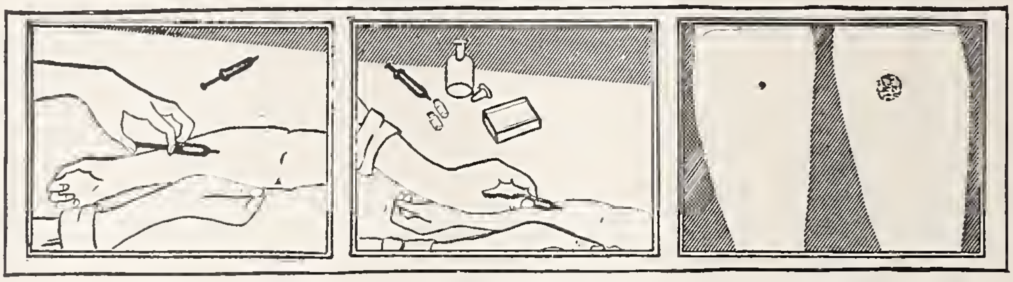

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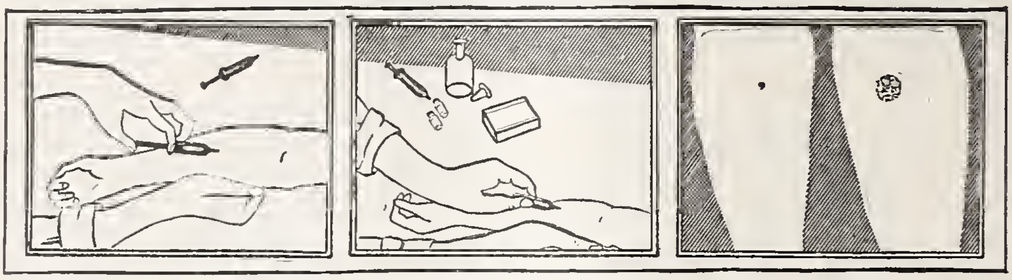

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